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# The fdurational flournal. 

Coņsolidating "THE EDUCATIONAL WEEKLY" and "THE CANADA SCHOOL JOURNAL."

## The Educational Journal. <br> Published Semi-monthly.

a journal devoted to literature, science, art, and the advancement of the teaching profession in canada.

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J. E. WELLS, M.A.
. HOUGH, M.A.
Manager Educational Dep'
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Business communications should be addressed to the publishers; those relating to matter for insertion in the paper, to the editor. These distinct matters should always be treated on separate sheets of paper.

## PUBLISHED BY

THE GRIP PRINTING AND PUBLIShing CO.

## TORONTO, CANADA.

T. G. WILSON,

General Manager

## Table of Contents.



## SCHOOL WORK AND PLAY.

## A Naw List of Generous Premiums.

The Publishers of "School Work and Play" have decided to make a grand effort to interest all of the teachers, and all of their pupils, in this country, in the new Canadian paper for Canadian boys and girls. Its excellence is admitted on all hands ; but, unfortunately, it cannot live on even the most sincere and friendly encomiums. Four thousand more subscribers are required to place it on a safe financial footing; and to the teachers and their pupil canvassers alone can the publishers look for the success of the enterprise.

Sundry prizes were offered for the formation of school clubs ; but these were mainly confined to the teachers. The publishers now make the following offers, which they believe will be sufficient to induce an effort to secure the success desired :

## PRIZES FOR PUPIL CANVASSERS.

I. -To the boy or girl sending the largest list of new subscribers by Sept. Ist, $\boldsymbol{A}$ Gold Watch.
2.-Second prize, for second largest list, A Silver Watch.
3.-Third prize, for third largest list, $\$ 10 \mathrm{in} \mathrm{cash}$. 4.-Fourth prize, for fourth largest list, A Printing Press or a Magic Lantern, if the list be sent by a boy; or $A$ Good Writing Desk, if sent by a girl.
5.-Fifth prize, for the fifth largest list, A Cricket Bat or Base-Ball Set, if sent by a boy ; or $\boldsymbol{A}$ Good Workbox, if by a girl.
It is a condition that the fifth prize list number at least 25.

PRIZES FOR THE TEACHERS.
First.-In order to secure the interest of the teachers in engaging their young canvassers, and overseeing their operations, we will give a Concise Imperial Dictionary, best binding, 10 the teacher of the pupil who wins the Gold Watch; and a Concise Imperial Dictionary, cloth binding, to the teacher of the pupil who wins the Silver Watch.
We also increase our former offers to teachers getting up school clubs, as follows :
1.-An extra copy for an order for 5. 2.-The "Educational Journal" for an order for 15.
3.-"Grip,'" 1 year, for an order for 25. 4.-"6 Grip" and "The Educational Journal" for an order for 35.
5.-The Concise Imperial Dictionary, best binding, for an order for 50 .
6.-The Concise Imperial Dictionary and "The Educational Journal" for an order for 60.
7.-The Concise Imperial, Dictionary, "The Educational Journal," and "Grip," for an order for 75.
8.-Webster's Unabridgea Dictionary, bound in sheep, "The Educational Journal," and "'Grip,' for an order for 100.

These generous offers to teachers, are, of course, independent of those to the pupils, the teachers securing these premiums for their own work, as the pupils secure their premiums for theirs.

Will our friends not now make one grand effort, either in a thorough canvass of their own, or in setting reliable pupil canvassers at once to work ?
Samples will be sent to all teachers whose addresses we have, on ist May, and samples and directions will also be furnished, on request, to all pupils who wish to act as agents and compete for the prizes. Address,
GRIP PRINTING AND PUBLISHING CO.

## Editorial Notes.

IT is worth all our readers' while to refer to the advertisement of the Ontario Business College, Belleville, even as a matter of curiosity, to learn of the success that has attended an Ontario institution, whose fame has gone beyond the bounds of this continent. The work it does makes it worthy of its success.

Canada, and particularly its Maritime division, is becoming quite prolific in poets. The April number of the Atlantic Monthly contains a long poem entitled "Death in April," by Bliss Carman, a promising young New Brunswicker. The poem is very creditable as a whole and contains many fine passages. We shall try to find room for a sample or two on another page.

In reference to the query concerning the Reef of Norman's Woe, in last issue, Inspector Dearness sends us the following :
" At the time a certain series of Readers was in preparation I had some correspondence with Longfellow. Of the Reef of Norman's Woe he wrote, under date of Feb. 8, 1881, 'I do not know, nor do I think any man living knows why the Reef of Norman's Woe is so called. Such is its name, but the origin of it is unknown so far as I have been able to discover.' "

The Principal and masters of the Normal and Model schools in Toronto, with the approval of the Minister of Education, have determined to observe Arbor day in a suitable manner, and for this purpose have invited a number of distinguished ladies to plant trees indigenous to Canada in the Normal School grounds. A number of well-known ladies have been invited to take part in the proceedings. The children are to have a holiday, of course.

The Journal of Pedagogy recently heard a teacher assert that he would not admit his ignorance of any subject or part of a subject in the presence of his pupils. Our contemporary seems astonished at this evidence of the survival of a species which he had supposed to be extinct. It is certainly not a case of "survival of the fittest." The editor well says :-
"We know of no more painfal discovery to a pupil than to know that a teacher of his is or was a charlatan, and that he lacked that most essential element of true courage, the selt-mastery that makes him willing to tell the truth at the expense of his pride."

From the last annual report of the Ontario Education Department we learn that in $\mathbf{1 8 8 5}$,
no less than 38,940 trees were planted in the Province on Arbor Day. In 1886, the number was 34,087 , and in $1887,28,057$. The falling off in numbers probably points to the gradual filling up of the spaces available in the School grounds, not to any lack of interest in the workThe Minister says, "In a very few years every rural school in the Province will have its pleasant shady bower, where the pupils can find shelter from the scorching sun during the Summer months, and where their taste for the beautiful in nature will find some gratification."

IT is not necessary to add to the announcements elsewhere, concerning "School Work and Play." Attention is respectfully asked to these announcements, to be found on pages $I 7$ and 30 of this copy of the JOURNAL, and in circular form as a supplement, sent to every teacher herewith. A copy of the current number (May 3rd), of "School Work and Play" is also sent in same wrapper, to every teacher in Ontario. It will be seen that the publishers are offering very liberal premiums to both teachers and pupil canvassers for the raising of school clubs. The intention is to make a grand effort, extending to ist Sept., in order to place this enterprise on a safe footing. Reliance is placed on the good-will of the teaching profession, and upon their judgment, of the desirability of such a paper for their pupils. They are answering in the "affirmative," and showing their appreciation. The problem should receive its solution within the next four months.

How many teachers puzzle their brains and spend their time in "hunting up" problems in Arithmetic for their classes! And when they have found them, how few take care of them, so that they may be of service at another time. A book which furnishes suitable problems-not founded on abstract figures but discussing marbles, and pennies, and dogs, and wood, and hay, and handkerchiefs, and a hundred other things to interest the pupil, would be one of the most welcome gifts which many teachers could have. Such a book is "Practical Problems," containing 700 of such questions-enough for all purposesproperly graded among the three lowest classes. It is eagerly bought by all needing such a work who see it. In this paper, which is sent to all the teachers of the country, we make the announcement that they can get this book, by return mail, post-paid, by sending 25 cents to the publishers, Grip Printing and Publishing Co., 28 Front St. West, Toronto. Do not be without it any longer.

There is some danger that in the reaction from the abuse of the facuity of memory that formerly characterized the Public Schools, there may be a tendency to go to the opposite extreme by neglecting its proper use and cultivation. Perhaps the worst fault in the old system was in the quality rather than the quantity of that which pupils were required to commit to memory.

We know no school exercise more useful to the pupil than the memorizing of select passages from the best literature, in prose and poetry, and even, where practicable, of short articles and poems complete. These should be, of course, of the choicest kind. The man or woman whose mind has been enriched with gems of thought, and with exquisitely wrought paragraphs in prose or verse breathing noble sentiments and aspirations, has within that mind an unfailing storehouse of treasures. These things of beauty will not only be "joys forever," but will often prove sources of help and solace in hours of trial and despondency.

From the last report of the Indian Department it appears that there are now 103 Indian schools in the North-West, with $2,94 \mathrm{I}$ children on the roll, and a daily average attendance of 1,580 . While 2,079 of the children take lessons in reading and spelling, the higher branches are taken as follows: writing, $1,15^{8}$; arithmetic, 946 ; geography, 343 ; music and singing, 340 ; drawing, 300 ; history, 8 r . The work of the teachers is very much hindered by irregularity of attendance, and especially by the absence of the children for many weeks at a time during the periodical hunts. We have recently seen a letter from an intelligent and earnest Indian teacher, who complains that these long absences go far to neutralize the effects of the instruction given during the preceding weeks, and urges that arrangements should be made for boarding the school children during their parents' absence, so that the work of the schools might not be interrupted. The additional expense would not be very great. The suggestion is a good one.

We are pleased to announce that a Canadian edition of " 100 Lessons in English Composition" is to be brought out immediately, being now in the press. The book is the work of Mr. W. H. Huston, M.A., First English Master of Toronto Collegiate Institute, well-known to our readers as the conductor of the English Department of the Educational Journal. It is thus a volume most certain to be welcomed by all teachers of this important subject. The book is designed for Public Schools, and the junior forms of High Schools, and consists entirely of exercises for class work-four hundred in all. These "Lessons" are graded, and include every possible kind of useful exercise, constructed and adapted by a practical teacher in this department. The exercises are arranged in such a way that four of them will constitute a complete lesson; hence the title "roo Lessons." Teachers of Composition will find the book abreast of the times. The exercises are very practical, covering the whole field of English Composition, as taught on the most recent and most scientific principles. Price, 25 cents. Send to GripaPrinting and Publishing Co., 28 Front St. West, Toronto, the publishers, and get

## Educational Thought.

## TEMPLE BUILDERS.

## by susan coolidge.

Souls are built as temples are,-
Sunken deep, unseen, unknown,
Lies the sure foundation stone,
Then the courses framed to bear Lift the cloisters pillared fair. Last of all the airy spire,
Soaring heavenward, high and higher,
Nearest sun and nearest star.
Souls are built as temples are,-
Inch by inch in gradual rise
Mount the layered masonries.
Warring questions have their day,
Kings arise and pass away,
Laborers vanish one by one,
Still the temple is not done,
Still completion seems afar.
Souls are built as temples are,-
Here a carving rich and quaint,
There the image of a saint ;
Here a deep-hued pane to tell
Sacred truth or miracle ;
Every little helps the much,
Every careful, careless touch
Adds a charm or leaves a scar.
Souls are built as temples are,-
Based on truth's eternal law
Sure and stedfast, without flaw.
Through the sunshine, through the snows,
Up and on the building goes;
Every fair thing finds its place,
Every hard thing lends a grace,
Every hand may make or mar.

The fame and usefulness of all institutions of learning depend on the greatness of those who teach in them, and great leachers are almost rarer than great poets. -James Russell Lowell.
Teaching is the only protession or work of a responsible nature in the world where experience and professional preparation are not considered of indispensable importance.-Francis W. Parker, Cook County, Ill.
THE teacher must have infinite patience for de-tails-knowledge of men as well as of childrenforesight into the future so he can link it to present study and duty-fertility of expedients-affability of manners-energy of will-the instinct and ability to command-the confidence of the community, and a universal ability that, in other positions, would command an adequate salary for present needs and for future wants. Do we do our teachers justice in the way of compensation?-American Journal of Education.
There is just one road to success, and that is the road of hard work. All sort of short cuts have been devised and tried by people, but they have all been short cuts to failure. The long road of hard work is the only highway that leads to success; all by-paths end in the swamp. This is a great lesson that ought to be taught to our boys to-day.
Our trouble with a good deal of the teaching of boys is that it fixes their minds on the reward rather than on the work. Activity is the necessity of every strong nature; a lazy boy is a sick boy or a defective boy. Boys ought to be taught to love hard work for itself, without reference to its rewards. There is no fear about the success of the man who loves hard work; if he does not achieve the one particular thing he wants, he will get happiness out of the work itself. It is useless to tell boys that this world is a place in which everybody gets what he wants. It is a world in which very few get what they want. Frank, honest teaching is greatly needed; teaching which will make boys understand that life is full of hard work, that no one particular success can be counted on, but that the man who is willing to work, who is honest and true, is the man who will stand the best chance of becoming prosperous and influential, and is the man who will, under any circumstances, have the supreme satisfaction of having done his work like a man.-Christian Union.
george paxton young, m.a., LL.D.
The late Professor Young was born in Ber-wick-on-Tweed, in November, 1818. His early education was gained in his native town and in the Edinburgh High School. There is little to record of this period of his life, nor did his subsequent career in Edinburgh University, from which institution he obtained his degree of M.A., afford much indication of the high rank he was destined to attain as a powerful thinker and an açute metaphysician. During his university career he had the questionable advantage of attending the lectures on Moral Philosophy of Professor John Wilson, and suffered unquestionable loss by being graduated just before the appointment of Sir William Hamilton to the chair of Logic and Mental Philosophy. It is interesting to know, however, that an exposition by Mr. Young, of some points in Sir William Hamilton's Philosophy of Matter, published in a Canadian paper while Mr. Young was filling the Philosophical chair in Knox College, elicited warm praise from the great metaphysician and led to some correspondence between the two.

After leaving the University, Mr. Young spent some time as a teacher of mathematics, a branch of study of which he was very fond and in which he had attained great proficiency. At a later period of his life some of his theories and discoveries drew from a fellow enthusiast in this branch of science the statement that " Professor Young was one of the most remarkable mathematicians that ever lived."

On the disruption of the Estab. lished Church of Scotland in 1843 , Mr. Young became a candidate for the ministry, entering the newly founded theological hall of the Free Church in Edinburgh, where he attended the lectures of Chalmers and Welsh. After a short pastorate in the Martyr's church, Paisley, he came to Canada in 1848, and for three years was pastor of Knox Church, Hamilton. the ministry to accept a professorship in Knox College, Toronto, where, in addition to mental and moral philosophy, his work included exegetical theology and the evidences of Christianity. After an incumbency of several years he resigned the professorial chair for a variety of private reasons, one of which was a conscientious scruple he felt in instructing students for the ministry, on account of his theological views not being in entire accord at all points with those accepted by the Church.

Shortly after leaving Knox College, he was offered the Inspectorship of Grammar Schools in the Province of Ontario. This position he accepted and filled with rare ability for four and a half years. To his efforts are due not only the elevation of the Grammar Schools from the unsatisfactory condition in which they were at the time of his appointment, but also, in large measure, many of the best features of the On-
tario school system as it exists to-day. A detailed account of his labors during these years would be a history of public education in Ontario during the same period. His reports threw a flood of light on the internal condition of the grammar schools of the Province, and many of the suggestions contained in his reports-more especially those of 1866 and 1867 -were embodied in the School Acts of 1871, 1874 and 1877.

But Professor Young's labors were by no means confined to the Grammar, or as they are now called the High Schools of the Province. Hardly less important were the recommendations made by the Central Committee, of which he was chairman, for the examination and classification of Public School teachers. These recommendations formed the basis of the School Act of 1887, and contributed largely to the advancement of the Public Schools. Professor Young was also at one time a member of the

which had been carried on with so much assiduity that he had few living equals in the intimacy of his acquaintance with the literature of his subject. As a lecturer and teacher he had few equals, and the Department of Metaphysics and Ethics, from being one of the most unpopular, soon became one of those most resorted to by candidates for honors. Thoroughly earnest and enthusiastic himself, he possessed in a remarkable degree the rare faculty of being able to infuse into his class a large amount of his own spirit. His method of instruction has been described as consisting of, first, the exposition of the systems of other thinkers; secondly, the criticism of their views, and thirdly, the inculcation of his own opinions.
It is, we think, greatly to be regretted that Professor Young never gave to the public the results of his study and thought in connected and permanent form, and that he has left behind him no MSS. from which such an exposition of his views can be prepared. The position of Professor of Philosophy in a public institution is one of peculiar responsibility in its relations to the public, inasmuch as the criticisms offered and the theories advanced have a direct personal bearing upon belief in a region in which truth is generally regarded as of transcendent importance, seeing that it is inseparably associated with character and conduct. In fact, it might be argued with at least plausibility, that the patrons of an educational institution, whether belonging to the state or not, have a right to be put in a position to judge of the character and effect of the metaphysical and ethical theories therein put forward, Many would have been glad, on purely scientific grounds; many others on the higher grounds of morals and religion, to have had the opportunity of studying Professor Young's views in some authorized exposition.
old Council of Public Instruction. On the abolition of that body, the Minister of Education naturally turned to the Central Committee for advice and guidance in the discharge of his responsible duties. In 187 Mr . Young was unanimously elected President of the Ontario Teachers' Association, and on that occasion he delivered an address which was a most valuable commentary on the principles of the then recently enacted School Law.
Professor Young resigned the position of Grammar School Inspector to accept, for the second time, that of teacher of Philosophy in Knox College. Although he undertook no theological subjects, his field in this college was necessarily restricted, and it was with gratification that his friends heard of his appointment in 1871 to succeed the late Dr. Beaven as Professor of Metaphysics and Ethics in University College. During the years of his pastorate he had begun a course of reading in philosophy

A note in regard to Professor Young's personal characteristics must close this paper. He was modest and unassuming to a degree. One result of the retiring habit which was the outgrowth of these traits is a scarcity of material for reminiscences of the kind so interesting to the admirers of a departed good man. All his friends seem agreed in bearing testimony to the gentleness, aimability and lack of affectation which gave a peculiar charm to his private life. In a brief paper in the Varsity of March 16th, one ot his colleagues, Professor Hutton, dwells on the pleasing modesty which " strove to conceal his knowledge." In regard to the business matters of the College Council meetings his attitude is described as that " of a philosopher who looks upon all sublunary things from a point of view wholly abstract and removed from all considerations of personal convenience or the opposite," though it is not easy to reconcile this view of his character with his thoroughly practi-
cal discharge of the duties of Grammar School Inspector, above referred to. In a postscript Professor Hution quotes from the letter of a former student an incident of a personal character which reveals the departed Professor in the pleasing light of a most generous friend to his pupil, rendering him, unasked, pecuniary aid in a delicate and sympathetic fashion which marked him as a true disciple of Him who charged His followers when doing their good deeds, "Let not thy left hand know what thy right hand doeth."

## Arbor Day Selections.

## PLANTING SCHOOL GROUNDS.

This subject, of great importance in itself, and treated with much ability, occupied the attention of a late meeting of the iriassachusetts Horticultural Society, in an address by L. M. Chase, of Roxbury. He very correctly remarked at the outset, that if we desire to render our school grounds attractive and a public ornament, there is nothing which yields so great results for a small expenditure as the decoration of planting. He remarked that many of the school-houses in that highly cultivated region would be far more attractive if a few dollars could be expended in planting trees and shrubs about them, and improving the lines of approach. Except in the State of Connecticut, almost nothing had been done to adorn the country school grounds of New England. In many instances, five do lars a year would in a few years render them exceedingly beautiful. Many years ago, a distinguished public speaker, who had traveled through a large portion of Western New York, remarked before a large assembly that he could at once distinguisb the common school-house in any district from other buildings, by its unattractive and neglected condition, without a tree or a bush to protect it. Another person named a locality where he had seen two magnificent brick barns, supposed to have cost at least six thousand dollars each, and within a mile of them a district school was in session in a house not costing five hundred doliars, and badly neglected besides. This contrast between brick barns and unpainted school-houses showed very distinctly the relative estimation in which their horses and their children were held by these farmers !
The district and other public schools, in which so large a portion of the lives of children are spent, and where many of the most important early and permanent impressions are received, should be of a pleasing and instructive character, and not of a repelling influence. The grounds shouid be planted with trees and shrubs, and neatness studied and kept up. A reason why so many occupants of farms show such a disregard for order, may be traced to the repulsive early lessons received by them at school in their younger years.
Sometimes a moderate amount of attention will accomplish important results. The owner of a farm was asked for a school lot, for a house about to be erected. In selling it he made the provision that a dozen deciduous and a dozen evergreen trees should be planted and kept in good growing condition, and till this was the case, seven dollars a year should be paid to him by the school trustees. They paid the penalty but once; and now handsome trees and comfortable shade distinguish the premises, while other school-houses in that region of country are marked for their baldness and neglect.
In connection with planting trees, valuable lessons may be taught of practical utility. Every neighborhood has growing wild, within a few miles, many species which every country resident should distinguish at sight. There are growing wild in the northern States of the Union as many as twenty species of the oak, and yet how many men in a thousand can distinguish and name one-half of this number? There are seven species of hickory, six of maple, seven of pine, seven of birch, and if a part of these could be transplanted to the
grounds of our larger schools and academies, the knowledge of timber trees which might be thus taught would be of real utility in many instances in after-life. Some of these and other trees might be cbtained from our best nurserymen at little or no expense ; and a collection of named shrubs would add to their value. The temporary and permanent care and protection which they would require, and which competent teachers could induce the students to give them, would be a positive advantage in practical treatment.
The lecturer, whose words we have quoted, very justly regards the work of teaching school-children a love of nature, a matter of great importance, both as increasing the sources of happiness to them, and as opening avenues for their future use. fulness in many ways. He says: "Set the child down in the lap of nature, in the midst of flowers and trees, of mountains, and of the blue arch of the sky above him. Let him hear the songs of birds, the soft breathing of Spring, the sighing of Autumn, the blast of Winter, and his education is properly begun, and not till then. I have been told by several persons that they first learned to love school through their nature lessons. Such instruction, will never be forgotten, and will produce important results in mature life."
During the discussion which followed the lecture above mentioned, a member mentioned an instance in which permission was obtained to plant trees in a school-yard, and the children subscribed money for the purpose, and the trees were planted. Both teachers and pupils took great interest in this movement to turn education in a little different direction from that which it now takes.-Country Gentleman.

## EMBELLISHMENT OF SCHOOL GROUNDS

In a paper recently read before the Massachusetts Horticultural Society, Mr. L. M. Chase, Master of the Dudley School, Roxboro, ably advocated an increased amount of attention to this matter. And in this he is in accord with the spirit of our Association, which has been endeavoring to draw public attention to the bare appearance of many of our rural school grounds, and to the possibility of making them each models for private lawns and pleasure grounds; and by planting collections of our native trees and shrubs, properly labeled, to educate our children in this department of horticulture. He said :-
"The educational influence of a fine public building with grounds laid out in good taste is great. Among a number of examples I will mention the City of Toronto, Can., one of the handsomest on this continent, the beauty of whose school and other public grounds-made beautiful by tree and flower planting-is celebrated throughout the world. The result is that a great majority of the homes, whether magnificent or mean, are adorned with fine trees and flowers. If the influence on mature natures is so great; what must it be upon young children, whose tastes and habits of thought are not fixed! The celebrated Locke declares that he gained more ideas before he was five years old than in all the rest of his life, and the Jesuits say that if they can have the education of a child until he is seven, they don't care who teaches him afterwards. Indeed, the permanance of early impressions has become a proverb. We cannot, then, begin too early to establish right conceptions of moral and natural beauty in the hearts of the young.
The recent words of the school committeeman who, in rep'y to the charge of lavish expenditures for schools declared that "a child is at least as valuable as a paving stone," deserve immortality. School grounds should be separated into two distinct porttons-one for an outdoor gymnasium, and devoted entirely to that purpose; the other should be devoted to turf, trees, shrubs, flowers and walks. Pupils should be taught that everything which adds to the beauty of this place must be carefully preserved. Every plant should be labeled and catalogued, and most carefully nurtured. The playgrounds should have seats against the fences, a shelter from rain and heat, and a supply of pure water. All outbuildings should be screened by lattice work, or, better, by climbing vines like the Woodbine, Virginia Creeper, etc. Pupils should be early led to take an interest in the cultivated
part of the grounds. They will soon love the
plants and learn how to care for them. When this occurs, thefts and destruction of flowers so common in many places will almost entirely disappear, and most happy results will come in the evident elevation and refinement of the moral sentiments of our children.
Rightly improved, trees, vines, shrubs and flowers can be made to most important auxiliaries in instructing and developing our young children, furnishing means for numberless object-lessons, even in our primary schools. Such lessons are learned without effort, and even with delight by children who find other school tasks irksome. I have been told by several persons that they first learned to love school through their nature-lessons. Such instruction will never be forgotten, and will produce important results in mature hife. In the words of that excellent paper, Garden and Forest, "Appreciation comes with knowledge, and until our people learn about our trees-their value, their qualities and uses, the history of their lives, their distribution and relationship to the trees of the rest of the world-they will never really appreciate nor value them, or care for and protect them. If there is ever in the United $\mathbf{S}$ ates a stable, successful and popular system of torest control and forest management, applicable alike to the fortst of the State and to the humble wood lot of the smallest farmer it will rest upon a basis of a knowledge of rees and their importance to the community, commenced in the primary schools."
The time is near when, as in Germany, there will be connected with all our school grounds culivated portions, in which can be found flowers in bloom, from the early snowdrop to the late blooming chrysanthemum, and typical specimens of our finest native trees and shrubs, and small beds of broken ground where seedscan be sown from which children may see the mystery of germination and plant development. These will serve the double purpose of beautifying the premises and affording aid in practical instruction in natural science.-The Canadian Horticulurist.

## FLORAL CULTURE AND DECORATION

 OF SCHOOL GROUNDS.IN treating of the subject assigned to me, I shall not go beyond what we can do, by utilizing what our own Canadian forests and gardeners can produce. It is not necessary that I should enter into any botanical explanations. I shalt simply try to show how we can arrange the flora of our country, so as to cultivate the æsthetic faculties in our pupils.
In the first place, I think, that before entering on the practical part of the subject, it may he as well to see whether tree-planting and floral culture are necessary appendapes to our school work. Do they benefit the children under our charge? In answering this last question I need only refer you to the lesson on "Agriculture" in our Fourth Reader, where Horace Greeley reminds us, that a boy who has received a fair common school education, and has an active, inquiring mind, does not willingly consent merely to drive oxen and plough for ever. He will not sit down in a rude, naked home, devoid of flowers, trees, books, and intelligent, refining conversa:ion, and plod through a life of drudgery as hopeless and cheerless as any mule's. Again, he says the best investment the farmer can make for his children, is that which surrounds their youth with the rational delights of a beauteous, attractive home. The dwelling may be small and rude, yet a few flowers will embellish it, as choice fruit trees will enrich and gladden it.
It is not young people alone, however, who profit by a knowledge of floriculture. It is a pleasure which lasts through life, and often is a great solace in old age. Go into the homes of some old people, who in their youth had no opportunity of receiving a fair education, far less an æsthetic one, and what do you find. How often do you find such people sitting disconsolately around their hearth, old and shrivelled, grumbling and complaining of their troubles and ailments. Nothing seems to interest them, except, perhaps, a little local gossip. In fact their long life has simply developed them into what we might term old
crones. Visit, on the other hand, the homes of those
old people, who in their youth did receive a fair education, coupled with a taste for the Fine Arts, among which we may class floral culture. How do we find these occupied? Why, "passing their latter days in peace and placid contentment, enjoying the companionship of good books, and rejoicing in the works of God's hands in nature. Often you may see aged people of this class looking forward for Spring with as much delight as the boys and girls of the vicinity, and when this budding season arrives you will find them in their flower-gardens rejoicing in the new life around them; and, per-
haps, as they sit in their arbors watching the varihaps, as they sit in their arbors watching the vari-
ous plants bursting into leaf and flower, "looking ous plants bursting into leaf and flower, "looking through Nature up to Nature's God." To such it is given to enter into the spirit of Keble's address
to the flowers:-

Relics ye are in Eden's bowers,
As pure, as fragrant and as fair
As when ye crown'd the sunshine hours, Of happy wanderers there;
Ye dwell beside our paths and homes,
Our paths of sin and homes of sorrow,
And guilty man where'er he roams,

## Your innocent mirth may borrow,

Granting, then, that children ought to be trained to a knowledge and love of horticulture, we may ask, "Where are they to get this knowledge?" I can find no better answer, than "in the school-yard." Of course the children of the wealthier classes may receive such resthetic training in their homes, where their parents employ practical and professional florists. But why should the masses, who denied such pleasures, if on a smaller scale, when they can be got so cheaply? It ought, therefore,
te be the duty te be the duty of our teachers, when it is in their power, to train the asthetic faculties of the children in their charge. It is true a good many of rooms with beautiful flowers, but the beautifying of the school-yard is only here and there as yet
attempted attempted.
Perhaps some teacher is ready to say, "Oh,
what is the use of my taking so much trouble. I may be in this section for this much trouble. young teacher will be coming out of the Model School who will take fifty dollars less salary than simply advise such shall have to go." I would once and, if success a teacher to go to work at
ing a genuine his efforts in implanting a genuine love of the beautiful in his pupils, remaining, if there are hundred, will prevent his the community at all.

Another may at all.
trustees to purchase trees and shrubberies to decorate his school-grounds, but can never get them
to spend a dollar in that wonld say, that he does norection. To him I wonld say, that he does not require to put his will furnish all the trees required, and flowerplants from gardens in the vicinity will do to make a beginning; also, the children whose parents glad to bring them. Still anoth them
similar to what you recommend "I have done something aging success, until one night, one of the neighboring farmers' pigs got into the grounds and rooted discouraged and gave up in disgust." therefore, got

This suggests the first conditgust."
first thing to be done is to see that the fence is in good repair, and in this I think the trustees will not fail to help, when you explain your motives for
doing so. The next step is to secure the some thoughtful and ingenious device, which, even should it chance to be left open, will baulk all sorts
of animals at all hours of animals at all hours. Inspect the fence every
now and then, and practice the old adage ": in time saves nine," and you old adage "a stitch troubled with animals let loose on the be no more

$$
\begin{aligned}
& \text { Having thus secured your on the roads. }
\end{aligned}
$$ may go to work in the grounds with fance, you now the opportunity comes of giving your bigger boys a lesson in delving, for there are very few

even among our farmers' boys, who know how to properly wield a spade. In digging a piece of ground, they should leave the first furrow open, and carry its contents to the end of the plot to fill in the last furrow. Into this open furrow they should
throw the fertilizer, if any, then fill it in with the contents of the second, and go on in this way having always an open furrow ahead. When they have proceeded about a yard or two in this manner, they should take the rake, gather together all the large lumps of earth and bury them in the last opened furrow. Thus, they leave nothing on top but finely pulverized earth, which, when nicely raked presents a pleasing sight to the eye. In this manner delve a strip six or eight feet wide along the inside of the fence, on ail sides, if you think it is not too much work. After doing this neatly according to the above process, edge it in with pieces of one inch board. Outside of these edgings, cut out a walk three or four feet wide, and four or five inches below the level of the ground which was delved. This walk, your trustees will fill in with fine gravel, when they see that your labors are to develop into something tasty and of benefit to the children.

Now you are in a position to teach your pupils a lesson on tree planting. Get your supply of deciduous and evergreen trees from the bush, seeing that the boys do not cut and lacerate the roots too much. If you do not get your trustees to purchase a variety of trees, such as maples, mountain ash, and Norway spruces, you can get plenty of nice maples at home. The beautiful conical-shaped larch, commonly called tamarack, does well planted alternately with a maple, and makes a beautiful background ot a pleasing green for flowers. These can be got in any quantity in our own nearest swamps. Our own native black and white spruces are excellent substitutes for Norway spruce, and as an evergreen our balsams cannot be excelled. Having got your selection of trees, plant them around the grounds in the earth which has been dug. In the first place, plant a row of maples and mountain ashes alternately, if you have them, three or four feet from the fence and about twelve or fifteen apart. Between every two of these plant a larch, if you can, or if not, a balsam, reserving your spruces for the front. Between every two trees, again, a perennial flower or shrub of bushy structure may be planted. These, while making a floral display in Summer will produce a pleasing contrast with the evergreens. In planting see that you draw the attention of your pupils to the symmetrical arrangement you have made. If there is a tree of one species on this side show them that there is one of the same directly opposite, and the same with the flowers, which should be of the shrubbery description, such as orange lilies, tiger lilies, rosebushes. Three or four bunches of ribbon-grass would look well planted symmetrically along each side. Be careful also that all your trees are in a straight line, for this adds to beauty and symmetry. If your grounds have a southern aspect a row of tall poplars at the north end would serve admirably to protect both children and flowers from the biting cold and sometimes frosty winds. This, perhaps, would be sufficient for one year.
On the following year select some convenient spot, which would least interfere with the children's play-ground, for a flower plot, having a southern aspect, if at all possible. Divide this up into square or rectangular pieces for the larger and taller flowers, leaving a space for a few circular, heart or diamond-shaped beds to be neatly and artistically cut out, and planted with flowers of dwarf species, such as pansies, verbenas, etc. I your school-house or fence is a background to any of these beds train some creeping or climbiag plants up the side of it, such as the Egyptian bean or morning glory. Next to this beautiful background plant a row of the tallest kinds you can get, taking for instance, the holly-hock.

Proceed in this way with each row, classifying your plants according to their height until you come to the border. The border or edging ones should not be over six or eight inches in height, and sown in continuous masses and not in bunches. Marigolds, portulaca, sweet alyssum, and other such dwarf plants are most suitable for edgings. By arranging them in this order one flower does not hide the other from view, and in their blooming season the whole mass of beautiful variegated flowers is visible to the passing admirer. Construct neat walks around your beds and your trustees will gladly cover them with gravel. Between every two per-
ennial or biennial plants sow the seeds of some annual of the same height, thereby keeping up a succession of bloom throughout the whole Summer,
as the perennials and biennials bloom in early Summer, while the annuals make a display in the Fall months. Before your plot is finished, however, secure some aromatic plants, such as sweet mignonette, sweet alyssum, ten-weeks stocks, not forgetting the beautiful rose. These will make the air odoriferous and thas render your school yard pleasing to more senses than one.

When the trees and flowers are being planted see that the holes for receiving the roots and rootlets are large enough to allow them to assume their natural position. Give each one some hunting ground for itself. The best way to accomplish this is to get one boy to hold the tree or plant and keep vibrating and moving it up and down, while another boy shovels in gradually the pulverized earth. Do not let them pack the earth too hard. This will choke the roots, and your tree or plant will be sickly and ultimately die. Also after a thunder storm, when the earth gets baked, set the boys to work with hoe and rake. The girls are willing hands in weeding any beds where the hoe would be too clumsy and do damage.

To add to the beauty of the scene remove all stones and sticks, and if you cannot conceal your wood pile, have it neatly built up. Cover all trellis work, and especially unsightly objects with creeping plants. Above all keep out Mr. Porker from the neighboring farm-yard. This gentleman could uproot your whole year's labor in one hour, and you would be shocked to see all your flowers and trees raised high and dry like as many boats and ships stranded on the beach after a terrific storm. Get a catalogue from Mr. Rennie, Toronto or some other eminent seedsman, and renew your seeds once in a while, as some of the most beautiful double flowers will turn single on your hands. And now, I would recommend all teachers who have not yet done anything in the way of beautifying their grounds to do so at once, and so utilize Arbor Day and other spare moments,that they may instil into the minds of their pupils the same spirit and sentiment which actuated the great Scottish poet, Burns, when he addressed the daisy, as he was about to plough it under :

## Wee crimson tipped flower,

Thou'st met me in an evil hour,
And I maun crush thee amang the stour Thou bonnie gem.

## THE FORCE OF EXAMPLE.

A PROFESSOR in one of our Ontario Universities recently said to his class in grammar: "Never use a preposition to end a sentence with."
When I heard of it I thought how frequently teachers give their scholars grammatical rules to which they themselves do not adhere.

But far more essential than rules in grammar are rules in character-sound practical rules which we teach our scholars. With what force should that sententious saying come to ea chof us: "Practise what you preach." If all our teachers only realized the susceptibility of children, it might cause the former to be more particular about the example they set-in short-it might change their expression from "Do as I say," to "Do as I do."

If there is such a being in our profession as a smoking teacher, let me ask him what he would say if he saw a young boy from his school going and doing likewise?
Or is there a being of the other sex who would have her scholars hear her using impolite language, or see her doing an unkind act?

As I watched the little people spending their noon-hour playing "school," I could see reflected in them my own ways of teaching. It made me even more careful of my words and actions, when I saw what copyists they were. Let us try more than ever to set such an example as we would wish our scholars to follow.

Politeness promotes beauty in him who posaesses it, and happiness in those about him.-H. W. Beecher.

Good nature is more agreeable in conversation than wit, and gives a certain air to the countenance which is more amiable than beauty. - Addison.

## English Department.

All communications for this department should be sent to W. H. Huston, M.A., care of The Educational Journal, Toronto, not later than the 5th of each month.

## ENTRANCE LITERATURE.

SONG OF THE RIVER.
TitLe.-In the title of this poem the adj. phrase "of the River" may be paraphrased by the adj. clause "which the River sings." The river, being an inanimate thing, does not really sing, and can be represented as singing only by one of the figures of speech common to poetry; this particular figure of speech by which the inanimate thing, river, is represented as doing what a living being only can do, is called Personification. Other examples of this kind of figure are "The Smiling Land," the whistling wind, the hungry fire, the mad tempest, the furious cyclone, whispering age.

Class will find other examples and then give in their own words a definition of Personification.

The Poem.-Stanza I. Explanation of terms.
"Shallow."-An adjective having the value of a noun. See Gram. Less. xvi. 2.
"Pool."-Usually a small portion of water collected in a hollow part of the road or of a field; but here it is opposed to "shallow" and means a hole in the bed of the stream where the water is deeper than usual.
"Laughing shallow-dreaming pool"-The pleasant noise made by the river, as it flows over the pebbles in shallow places, strikes the poet as similar to the merry noise made by a person laughing; and the stillness and apparent absence of motion in the river, as it flows over some deep hole, strikes him as similar to a person sleeping and dreaming. He imparts this pleasing fancy to us by using the words "laughing shallow" and "dreaming pool."
Very likely the poet used dreaming rather than sleepy because he had just used "laughing," and is going to use "shining" and "foaming" in verse 4 ; poets are fond of similarity of sound like this, and it pleases the reader. Compare "clear and cool," "shining shingle," smoky, murky, taintless tide.
"Shingle."-Gravel on the shore of a river or of a lake.

Wear.-Written and pronounced wēir. A dam built across a stream to raise the level of the water. In it there is usually an opening called a "floodgate," through which or over which the water, when it gets above a certain level, flows and falls "foaming" to the depths below.
"Shining shingle-foaming wear."-No figure in these epithets as in verse 2 . Class will justify them, i.e., show their applicability.
"Crag."-A rock, often rough and jagged. Poetry likes uncommon words and expressions.
"Ousel."-Pronounced oosle. The bird here mentioned is the "water ousel"; a bird of the thrush family, as is our Canadian robin. It frequents clear, pebbly streams and lakes, and is often seen sitting on a rock on the edge or in the middle of a stream in hilly districts in Britain and o:her parts of Europe. It lives chiefly on small shell fish and water insects, and from the habit it has of bobbing its head up and down it is often called "The Dipper."
"Ivied."-Poets, in their efforts to lift their language above what is commonplace, frequently make use of uncommon expressions. Thus, except in poetry, we have no verb to "ivy "to give us a perfect participle "ivied." This word is admitted into poetry because it is shorter and more expressive than the prose expression "covered or overgrown with ivy."
"Where the church bell rings."-This adjective clause brings up pleasanter ideas than would the equivalent prose phrase " of a church"; hence it was chosen by the poet.
"Undefiled."-Pure. This character of the river has been already expressed by "clear." It, as well as the coolness, is dwelt upon and repeated as a ground for the invitation in the last verse of the stanza, and as a contrast to the statements of the second stanza.
"Undefiled-mother and child." The river says:" I am pure, and I am for the use of the pure"; and then taking a mother and her child as pure ; and andes of pure persons, it invites them to take
enjoyment out of it by playing by it and bathing in it; perhaps playing by its shallows and bathing in its pools.

Now let class paraphrase this stanza, inserting such words as are necessary for full grammatical construction. Example-[I am] clear and cool [as I pass] by laugbing shallow, and [flow through] dreaming pool : [I am] cool and clear [as I pass] by shining shingle and [tumble over] foaming wear ; [I flow] under, etc., etc.
Next, let the class describe in its own words the mental picture conveyed by the first four verses by the first six verses; by whole stanza.
Lastly, let the class read the stanza in such a way as to convey this mental picture to a hearer.

Stanza 2.-" Dank."-Preferred to " damp" for reasons given under "ivied" above.
"Foul."-Impure. The opposite of "clear" and " "undefiled."
"Smoky town-murky cowl."-The poet supposes the river in its course no longer to flow through country places, but through a town, the smoke of whose factory chimneys, united to that of the private houses (for there is no smokeless anthracite in England), is suspended in the air in calm and heavy weather and hangs like a covering over the town. This covering of smoke, being often so dense as not to allow the sun's rays to penetrate it, renders the atmosphere below "murky," i.e., dark or gloomy, as if covered by an immense hood or "cowl."
"By wharf....bank."一On the banks of the river, as it passes through the town, "wharis," i.e.,
landings of wood or stone, at which vessels load landings of wood or stone, at which vessels load and unload, have been built here and there; and "sewers," i.e., large underground drains, pour into it their impure contents. The filthy matter thus emptied into the river robbing it of its clearness and rendering it "foul," settles, and is deposited on the bottom and sides of the river in the shape of " slimy" mud.
"Darker and darker. .go."-Less and less clear, i.e., less and less pure, owing to the pollution poured into it by successive sewers on its passage through the town.
"Baser."-Viler, meaner.
"Richer," "sin-defiled."-Scarcely applicable to the river as such; but see below.
"Who....child."-At the end of stanza 1 , the poet makes the river, conscious of of its purity, invite the "mother and child" to "play by" and "bathe in" its stream. He now represents the river as so conscious of its impurity that it asks who would venture to "play by" (much less to bathe in) a stream so defiled and impure as it is ; and it even advises the pure mother and child to shrink and turn away from it.
Class will paraphrase this stanza, describe in words the mental picture obtained, and read correctly.
Stanza 3.-"Strong and free."-By receiving tributary streams and by having passed all obstacles.
"Flood-gates."-See "wear" above ; so called because opened in times of "flood."
"Away."-"I am off"; indicative of exultation.
"Cleansing my streams."-Better "I cleanse my streams," i.e., I purify my waters by receiving other clear streams, and by depositing impurities in my course.
"Golden sands."-Yellow sand brought down by the river and dropped to the bottom where the current becomes slow in consequence of meeting the incoming tide. (Illustrate.) "Golden" more poetic than yellow.
"Leaping bar."-The sand so deposited in many cases forms a ridge across the mouth of the river, which acts as a "bar" or barrier to the river's progress, and which it must needs "leap" over on its way to the sea.
"Taintless tide."-The ceaseless agitation of the waters of the ocean by the tides, by winds and by storms, preserves them from corruption and renders them " taintless."
(Force of suffix-less ? Other examples.)
"Main."-The ocean. Poetry eschews commonplace terms.
"Infinite main."-Though in geography, for our convenience in speaking of them, we divide the waters on the earth's surface into divisions which we call the "Atlantic Ocean," "Pacific Ocean,"
" Indian Ocean," etc., yet it is to be remembered
that no one of these is completely separated from all the rest. The main is therefore endless or "infinite."

But here the poet may have reference to the boundless appearance of the ocean to a person " out at sea," to whom, as to the "Ancient Mariner," there is
"Water, water, everywhere."
"As I hurry along," ete. Adverbial clauses to "As I lose myself," etc. $\}$ "cleansing."
"Like a soul [loses itself].....again."-This simile is inapplicable to the river as such ; but see below.
"Undefiled. . . . . child."-The river, having now regained its purity, repeats the invitation to the " mother and child."

## THE POEM AN ALLEGORY.

In the foregoing poem the poet has been describing the course of human life under the figure of a river. And in one or two places, by a confusion of thought, he has made the river. when speaking of itself, use language which is applicable only to the life typified by the river. This is the case with the verses-"Baser and baser the richer I grow." Who dare sport with the "sin-defiled," and "Like a soul that has sinned and is pardoned again."
The analogy or parallelism between the River and a Life may be traced as follows :-
Stansa I.-The river, a clear, beautiful stream, flows through country places uncontaminated. A child passes his boyhood amid the pleasant surroundings and innocent enjoyments of the country, and is free from vice.
" Laughing shallows." - The light - hearted thoughtlessness of youth.
"Dreamy pool."-Boyish reveries,-" Castles in the Air."
"Shining shingle."-The whole world seems bright and fair to the young.
"Foaming wear."-Headlong impetuosity and outbursts of passion characteristic of youth.
"Undefiled....child."-The boy, pure in heart and mind himself, wishes the companionship of those equally good.
Stanza 2.-Effect upon Effect of town life on the stream of its passing a pure-minded youth. through a town.
[Factories of] "Smoky Commerce, pursuit of town," "wharf."
"Sewer and slimy bank."-Places of bad resort that abound in cities to lead young men astray.
"Dank and foul."-Youth has yielded to temptation, is no longer pure; has joined in the dis. honest pursuit of wealth.
" Darker and darker....go." - He becomes more and more impure in heart the farther he pursues his downward course.
"Baser and baser....grow."-As the riches which he pursues increase, so does his love for them increase, and he descends to meaner and meaner methods of obtaining them.
"Sin-defiled." - Appropriately describes the young man when contaminated by the sins of the city.
"Who dare. . . . sin-defiled?"-Who will venture to associate with one so wicked as I ?
"Shrink from me. . . . child."-As if conscious of his baseness he warns pure-minded persons to shun him, and, by implication, to shun the course which has brought him to this state. Contrast this warning with the invitation at the end of stanza 1.

Stanza 3.-The river, strong by the acquisition of other streams, no longer impeded by town obstructions or polluted by town impurities, cleanses its stream as it bounds away to the end of its course in the sea, and loses itself in the endless ocean.

The man (in middle life and old age), freed from thetemptations and from the obstacles to a godly life that beset his early manhood, his worldliness overcome, his sins repented of, lives a purer and purer life as age increases, till the bar of death is passed and the soul leaps into eternity.

## "Cleansing my streams."-Putting away bad

 habits and follies of early life."As I hurry along."-After middle age, time seems to pass more quickly the older we get. See Campbell's "River of Life."
" The more we live more brief appear
Our life's succeeding stages;
A day to childhood seems a year,
And years like passing ages.
" But as the careworn cheek grows wan,
And sorrow's shafts fly thicker,
Ye stars that measure life to man,
Why seem your courses quicker ?"
"To the golden sands."-The days, weeks and years which make up a life are not unfrequently in poetry called "the sands of life." The figure is borrowed from the sand in the hour-glasses, which, before the invention of clocks, were somatimes used to measure time. (Teacher will explain their figure.) "Golden" bw the appropriateness of the in old age than in " because years are more valued "To the than in youth or early manhood. Hence, "To the golden sands"-to old age, when the "The of life is highly prized.
out of time into the ""-Death, when the soul leaps
"Like a soul.. "infinite main" of eternity. press the feelings of the again."-These words fitly exthe bounds of life. "Undefiled life
purity, he again invites pure-minded recovered his associate with him.

## Teachers' Miscellany.

## THE HYMN OF HABAKKUK.

[The following, which we take from the Varsity of March 16th, will be read with interest in connection with the sketch of Professor Young's life
on another page.]

Throngh the
enabled to reprint a courtesy of Prof. McCurdy we are of Habakkuk (Hab. iii.) which version of the Hymn of a volume of sermons and expesition at the end in 1854 by Dr. Young. As the volume is now out of print and very difficult to obtain, we are glad of have the opportunity of presenting to our glad to this evidence of the attainments in the feaders Hebrew scholarship and of the literary taste of our late Professor in Philosophy.

From Paran hill Jehovah came;
From Teman Israel's holy one.
(Pause.)
Then glorious did he make his name,
And wonders by his hand were done,
Refulgent like the sun he beamed,
Excessive in its his presence streamed-
Excessive in its blaze that light
Veiled, while it showed the Lord of might.
Before him passed, on wings of gloom,
His messenger, the dread Simoom;
His messenger, the dread Simoom;
And close behind his footsteps came
The Pestilence, with breath of came
The Pestilence, with breath of flame.
He stood and looked. Before his looks
The nations were asunder driven.
The everlasting mounder driven;
The hoary hills mountains shook;
The hoary hills were riven.
And Midian's curtains were the tents of
-Was the Lord wroth against the
Wast thou diapleased at Jordan's tide,
That thou displeased at Jordan's tide,
And on thy steeds of victory,
And in thy chariots thou did'st ride?
-His brow was made quito bare,
After the oaths which to the tribes he sware.
(Pause.)
Jehovah, when thy might appeared,
The mountains saw thee and they feared.
The earth was rent. The waters poured.
In deluge from the sky.
The sun and moon in their abode
Stood still ; while by thine arrows bright,
Thy people forth to victory rode;
Thy glittering javelin was their light.
Thou didst direct their conquering path,
And thresh the heathen in thy wrath
And thresh the heathen in thy wrath.
Thus to th' anointed ones he brought relief,
And saved the nation which he chose-
Smiting with utter overthrow, the chief
Of all who were his people's foes.
(Pause.)

Forth, whirlwind like, th' oppressor rushedThy feeble flock he would have crushed, But whelmed beneath the surging wave, His haughty princes found a grave.
Thy horses through the waters vast,
The deep and boiling waters, passed.

- Now troops once more against us come, I heard the rumor and was pained.
My cold and quivering lips were dumb; No strength within my bones remained. Dismay and terror filled my mind:
What refuge (thought I) shall we find,
When once the fierce invading band
Has poured its floods upon the land?
-But though the fig-tree should not blow,
The vine no produce yield,
Nor fruit upon the olive grow,
Nor meat be in the field;
Flocks in the fold no more abound,
Nor cattle in the stalls be found;
Yet in the Lord I will rejoice
And praise my God with cheerful voice. He is my strength-he clothes my feet With swiftness, like the light gazelle, He brings me to a safe retreat,
And makes me there in peace to dwell.


## THE USE OF EXAMINATIONS.

The following extract from one of the papers presented at a meeting of State Superintendents of Education, at Washington, D.C., contains some valuable hints :-
Examinations are indispensable as a progress of teaching, as well as of testing. They are a form of review with an extraordinary power to compel attention. Recitations cultivate critical power in matters of detail ; examinations the power to generalize with breadth of view. Scholars must be trained to grasp and hold, not only the lessons of the day, but the whole subject, analytically, covering the study of months. Good teachers must be left free to accomplish the required results in their own way.

Examinations are disliked chiefly by ill-disciplined schools, in which the timelfor study is dissipated. Examinations worthy of the name presuppose fairness on the part of the examiner, self-reliance on the part of the pupil, and perfect honesty on the part of both.
A lesson learned from many books is most likely to be recited in original language. Geography and history, at their best, will awaken a desire for more information than any single text-book can give. Reading, with its necessary adjunct of physical training, is the most important and yet the most neglected branch of instruction.

In arithmetic, the aim must be to dwell upon the essential, with much analysis of concrete examples, for the sake also of the language and the logic.

Simple accuracy is the highest goal in arithmetic. The study of English is profiting most by the reforming of school methods.
The school is widening its swath of practical knowledge every day. Manual training is strengthening the union between words and things, in the physic of wood and iron, the geometry of sewing, the chemistry of cooking, and the physiology of work. Here, I have found a school using odd minutes to name specimens of the wild flowers found in the vicinity, here another school absorbed for an hour in the study of a well-filled cabinet of woods and minerals, here another school closely watching the development of a fine collection of cocoons to observe the first emergence of the insect, and here another school eagerly scanning with microscope a selected portion of meat structure in order to better understand the facts of physiology. Many a good teacher has evidently heard the grand injunction: "Let mother nature come into your school-room and be your assistant. She is not too proud to do so. She will help you if you will let her."

## KEEP YOUR PROMISES.

DR. JUDSON wrote a few weeks ago concerning a serious subject-broken promises to children. How sad a topic this is ! Dear, trusting childhood, how many, many times have you been deceived, and how early have you been led to know
"All men are liars"! Teachers ! here is an important subject! Dr. Judson tells a story of the great missionary, Livingstone. He had promised to send a little boy in England some curiosities, but had forgotten to do so. Being reminded of his promise in a postscript the little fellow had added to a letter from his father, Dr. Livingstone said that he was "overwhelmed with dismay and confusion of face." Again and again he returns to the subject, and feels sure that his young friend would forgive him if he knew how much he suffered by his fault.

Dr. Judson also tells how Sir William Napier, while walking in the country, met a little girl sobbing over a broken bowl. Napier said he would give her a sixpence to buy another bowl; but, finding that he had no money in his pocket, he promised to meet her the next day at the same time and at the same spot. The child went away perfectly happy. On returning home he found awaiting him an invitaton to dine the next evening with some friends whom he particularly wished to see. He wrote, however, declining the invitation, with the remark to his daughters, "I cannot disappoint her; she trusted me so implicitly." He was a grand man, but how despicable and mean is one who deliberately promises a child, but does not perform.-Selected.

## DEATH IN APRIL.

WITH what high favor hast thou rarely given
A Springtime death as thy bestowal of bliss !
On Avon once thy tending hands laid by
The puppet robes, the curtained scenes were riven, And the great prompter smiled at thy long kiss; And Corydon's own master sleeps a-nigh
The stream of Rotha's well,
Where thou didst bury him, thy dearest child; In one sweet year the Blessed Damozel Beholds thee bring her lover, loved by thee, Outworn for rest, whom no bright shore beguiled, To voyage out across the gray North Sea;

## And slowly Assabet takes on her charm,

Since him she most did love thou hast withdrawn Beyond the wellsprings of perpetual"day.
And now 't is Laleham: from all noise and harm,
Blithe and boy-hearted, whither is he gone,
(Like them who fare in peace, knowing thy sway Is over earls and kings,
He was too great to cease to be a child, Too wise to be content with childish things.) Having heard swing to the twin-leaved doors of gloom,
Pillared with Autumn dust from out the wild, And carved upon with Beauty and Foredoom ?

Awhile within the roaring iron house
He toiled to thrill the bitter dark with cheer ; But ever the earlier prime wrapped his white soul In sure and fiawless welfare of repose,
Kept like a rare Greek song through many a year With Chian terebinth-an illumined scroll No injury can deface.
And men will toss his name from sea to sea
Along the wintry dusk a little space,
Till thou return with flight of swallow and sun

## To weave for us the rain's hoar tracery,

With blossom and dream unraveled and undone.
We joy in thy brief tarrying, and beyond,
The vanished road's end lies engulfed in snow Far on the mountains of a bleak new morn. Craving the light, yet of the dark more fond, Abhorring and desiring do we go-
A cruse of tears, and love with leaven of scorn, Mingled for journey fare-
While in the vision of a harvest land
We see thy river wind, and, looming there, Death walk within thy shadow, proudly grim, A little dust and sleep in his right handThe withered windflowers of thy forest dim. -Bliss Carman, in Atlantic Monthly.

THE man who seeks one thing in life, and but one May hope to achieve it before life is done;
But he who seeks all things, wherever he goes,
Only reaps from the hopes which around him he sows,
A harvest of barren regrets.

## Mathematics.

All communications intended for this department should be sent before the 20th of each month to C. Clarkson, B.A., Seaforth, Ont.

## [Nore.-We regret that, owing to an accidental mis laying of copy, we are obliged to hold over an interesting attempt at the vexed problem of the dissection of a plain angle for another issue.-Ed. Journal.] <br> UNIVERSITY OF TORONTO.-ANNUAL EXAMINATIONS, 1888. <br> Junior Matriculation. <br> ALGEBRA. <br> Examiners: $\left\{\begin{array}{l}\text { W. H. Ballard, M.A. }\end{array}\right.$

Nore.-Only io questions are to be attempted, except in the case of candidates for Scholarships, who will take all the questions.

1. Divide $a^{3}\left(b^{2}-c^{2}\right)+b^{3}\left(c^{2}-a^{2}\right)+c^{3}\left(a^{2}-b^{2}\right)$
by $\quad a^{2}(b-c)+b^{2}(c-a)+c^{2}(a-b)$
2. Find the remainder after dividing $x^{100}+m$ by $x-1 ; x^{2 \pi}-1$ by $x+1 ; x^{50}-1$ by $x^{2}-1$.
3. Find the factors of $(a-b)^{3}+(b-c)^{3}+(c-a)^{3}$; $(1+x)^{2}\left(1+y^{2}\right)-(1+y)^{2}\left(1+x^{2}\right) ; 9 a c+2 a^{2}-$ $5 a b+4 c^{2}+8 b c-12 b^{2}$.
4. Simplify
$\frac{(1+a b)(1+c a)}{(a-b)(c--a)}+\frac{(1+b c)(1+a b)}{(b-c)(a-b)}+\frac{(1+c a)(1+b c)}{(c-a)(b-c)}$
5. If $(a+b+c)(x+y+z)=0$,
$a x+b y+c z=0 ;$
show that $(b+c) x+(c+a) y+(a+b) z=0$,
and that $a(y+z)+b(z+x)+c(x+y)=0$.
6. By performing the operation of extracting the square root, find a value of $x$ which will make $x^{4}+8 x^{3}+18 x^{2}$ $+10 x-8$ a perfect square, and find the numerical value of the square root of the expression.
7. Solve
(1) $\sqrt{x+a}+\sqrt{x+b}=\sqrt{a-b}$;
(2) $x^{4}+y^{4}=7 x^{2} y^{2}, x+y=5$.
8. Simplify (1) $\left(\frac{-1+\sqrt{-3}}{2}\right)^{3}$

$$
\begin{aligned}
& \text { (2) } \frac{x+\left(x^{2}-1\right)^{\frac{1}{2}}}{x-\left(x^{2}-1\right) \frac{1}{2}}-\frac{x-\left(x^{2}-1\right)^{\frac{1}{2}}}{x+\left(x^{2}-1\right)^{\frac{1}{2}}} \\
& \text { 9. Solve (1) } x^{2}+\frac{1}{x^{2}}+x+\frac{1}{x}=4 \\
& \text { (2) } \frac{x}{a b c}+\frac{a-x}{b}+\frac{b-x}{c}+\frac{c-x}{a}=\frac{a+b+c}{a b c}
\end{aligned}
$$

10. Prove that a quadratic equation can have only two roots.
For what value of $c$ will the equation $3 x^{2}+5 x=6 c$, have equal roots?
11. A rectangular field whose width is to its length in the ratio $\frac{5}{7}: \frac{5}{8}$, contains 21 acres ; how many feet longer must it be in order to contain 24 acres?
12. The sum of the squares of two numbers is $a$ times their product, and the difference of their squares is $b$ times their product ; show that $a^{2}$ exceeds $b^{2}$ by 4.
13. Find the length and breadth of a rectangle which, if it were 7 yards longer and I yard narrower, would contain 200 square yards, and if it were 9 yards wider and 5 yards shorter, would contain 160 square yards.
14. Indicate a solution by which the area of the rectangle in the preceding problem may be obtained without finding either the length or the breadth.

## APRIL (1889).

I. Arrange according to powers of $a$, thus :
$a^{3}\left(b^{2}-c^{2}\right)-a^{2}\left(b^{3}-c^{3}\right)+b^{2} c^{2}(b-c)$, and
$a^{2}(b-c)-a\left(b^{2}-c^{2}\right)+b c(b-c)$. Strike out the common facter $b-c$ and apply Horner's method:

| $\begin{gathered} a^{2} \\ +a(b+c) \\ -b c \end{gathered}$ | $\left\{\begin{array}{r} a^{3}(b+c)-a^{2}\left(b^{2}+b c+c^{2}\right)+0+b^{2} c^{2} \\ +a^{2}\left(b^{2}+2 b c+c^{2}\right)+a(b+c) b c \\ -a(b+c) b c-b^{2} c^{2} \end{array}\right.$ |
| :---: | :---: |
|  | $\overline{a(b+c)+b c}$ |
| or $a b+b c+c a$. |  |
| anc | mainders are $-1+m, 0$, and 0 . In the last - 1 is $\left(x^{2}\right)^{25}-1^{25}, \therefore r e m ' d=0$. |

3. Let $x=a-b ; y=b-c, z=c-a$, and therefore $x+y+z=0$. The expression then becomes $\mathrm{x}^{3}+\mathrm{y}^{3}+\mathrm{z}^{\mathrm{s}}$
i.e., $\left(x^{3}+y^{3}+z^{3}-3 x y z\right)+3 x y z$.
i.e., $(x+y+z)\left(x^{2}+\right.$, etc. $\left.\quad\right)+3 x y z=3 x y z$,
for $x+y+z=0$.
$\therefore 3(a-b)(b-c)(c-a)$ is the result.
(ii) $2(x-y)(1-x y)$.
(iii) $(2 a+3 b+c)(a-4 b+4 c)$.
4. $S u m=0$. For $C, D=(a-b)(b-c)(c-a)$.

Ist Nr. $=(\mathrm{I}+\mathrm{ab})(\mathrm{I}+\mathrm{ca})(\mathrm{b}-\mathrm{c})$
$=\left[1+a(b+c)+a^{2} b c\right](b-c)$. Hence by symmetry
$2 n d=\left[1+b(c+a)+b^{2} c a\right](c-a)$
$3 \mathrm{rd}=\left[1+c(a+b)+c^{2} a b\right](a-b)$
$=0+a\left(b^{2}-c^{2}+a b c a(b-c)\right.$
$+b\left(c^{2}-a^{2}\right) \quad b(c-a)$

| $+c\left(a^{2}-b^{2}\right)$ | $c(a-b)$ |
| ---: | :--- |

of which $a(b-c)+b(c-a)+c(a-b)$ is plainly a factor. But this factor $=0, \therefore \mathrm{Nr}=0$, and $\mathrm{Sum}=0$.
5. From (i) $a x+a y+a z+b x+b y+b z+e t c .=0$ Subtracting ii, $a y+a z+b x+b z+c x+c y=0$ or, collecting $x, y$ and $z,(b+c) x+$ etc. $=0$
or, collecting $\mathrm{a}, \mathrm{b}$ and $\mathrm{c},(\mathrm{x}+\mathrm{y}) \mathrm{a}+$ etc. $=0$. Q.E.D.
6. Expression $=\left(x^{2}+4 x+1\right)^{2}+(2 x-9), \quad \therefore 2 x-9=0$; $x=\frac{9}{2}$.
Sq. rt. $=(x+1)^{2}+2 x=\left(\frac{11}{2}\right)^{2}+9=12 \frac{1}{4}+9=39 \frac{1}{4}$.
Note.-This is the simplest answer, but not the only one, for expression also $=\left(x^{2}+4 x+2\right)^{2}-\left(2 x^{2}+6 x\right.$ -12), from which two values of $x$ will result.
7. (i) Square both sides and
$2(x+b)=-2 \sqrt{(x+a)}(x+b ; \quad \therefore \sqrt{(x+b)}=0, x=-b$
And $\sqrt{(x+b)}=-\sqrt{(x+a),}$ or $x+b=x+a$. Now, this can be true only on two conditions, (1) when $a=b$ $=0$; (2) when $x=a$ or 0 , the roots are $x=-b$ and
$x=a$; but the latter root does not apply to $x=a$; but the latter root does not apply to this equation, as may be seen by substitution. Nor will it apply to the conjunct equation

$$
\sqrt{(x}+a)-\sqrt{(x}+b)=\sqrt{(a}-b) \text { unless } a=b=0
$$

(ii) $x^{4}+2 x^{2} y^{2}+y^{4}=9 x^{2} y^{2}, \therefore x^{2}+y^{2}=+3 x y$.

But $x^{2}+2 x y+y^{2}=25=5 x y$ or $=-x y$
$\therefore x y=5$ or $=-25, \therefore 4 x y=20$, or $-100 ;$
$\therefore x^{2}-2 x y+y^{2}=5$ or $=125$
$\because x y-5$ or $-25, \quad .4 x y=20$,
$\because x^{2}-2 x y+y^{2}=5$ or $=125$
$\therefore x-y= \pm \sqrt{5}$ or $+5 \sqrt{5}$, but $x+y=5$, etc.
$\therefore x=\frac{1}{2}(1+\sqrt{5}) \sqrt{5}$, or $\frac{1}{2}(1+\sqrt{5}) 5$
8. Cube the Nr. by the formula $a^{3}+b^{3}+3 a b(a+b)$
and we have and we have
$\begin{aligned} & -1-3 \sqrt{-3}-3 \sqrt{-3}-1+\sqrt{-3})\end{aligned}$ $=-1-3 \sqrt{-3}+3 \sqrt{-3}+9=8$. Ans. $=\frac{1}{8}$ of $8=1$.
(ii) For convenience write $m$ for $\left(x^{2}-1\right)^{\frac{1}{2}}$, and we have

$$
\begin{aligned}
& \frac{x+m}{x-m}-\frac{x-m}{x+m}=\frac{4 m x}{x^{2}-m^{2}}=4 x^{\sqrt{x^{2}-1}} \\
& \text { 9. }\left(x+\frac{1}{x}\right)^{2}+\left(x+\frac{1}{x}\right)-2=0
\end{aligned}
$$

$\because x+\frac{1}{x}=\frac{1}{2}(-1+\sqrt{9})=2$ or -1
which will yield four values for $x$.
ii. Multiply through by abe and collect $x$
$x(1-c a-a b-b c)=a+b+c-a^{2} c-b^{2} a-c^{2} b$
$\therefore \mathrm{x}=$ etc.
10. i. Book-work. ii. The roots of $a x^{2}+b x+c=0$ are equal when $b^{2}=4 \mathrm{ac}$, hence in this example the roots are equal when $25=72 \mathrm{c}$, or $\mathrm{c}=\frac{25}{7}$.
II. $\frac{4}{7}: \frac{5}{8}=24: 35$. Let 24 x and 35 x be the dimensions.
$\therefore 24 \mathrm{x} \times 35 \mathrm{x}=21 \times 4840$ yards, $\therefore \mathrm{x}=11 \mathrm{yds}$.
Let $y=$ req'd increase in length.
$\therefore 24 \times 11 \times 11(35+y)=24 \times 5280 \mathrm{yds} . \therefore \mathrm{y}=5 \mathrm{yds}$.
12. $x^{2}+y^{2}=a x y$, and $x^{2}-y^{2}=b x y$.

$$
\therefore a^{2}=\left(\frac{x}{y}+\frac{y}{x}\right)^{2}=\frac{x^{2}}{y^{2}}+\frac{y^{2}}{x^{2}}+2
$$

and $b^{2}=\left(\frac{x}{y}-\frac{y}{x}\right)^{2}=\frac{x^{2}}{y^{2}}+\frac{y}{x^{3}}-2$

## $\therefore a^{2}-b^{2}=4$.

13. $(x+7)(y-1)=200=20 \times 10$
$(x-5)(y+9)=160=8 \times 20$
or $=(13+7)(11-1)$ or $=(13+7)(11-1)$
and $=(13-5)(11+9)$

$$
x=13, y=I I
$$

14. Multiply out the above equations and we get
(i) $x y+7 y-x=207$, (ii) $x y-5 y+9 x=205$.

Multiply $i$ by 9 and eliminate $x$; multiply i by 5 and (ii) by 7 , and eliminate $y$. Thus we get iii $5 x y-$ $1034=-29 \mathrm{y}$
and iv $6 x y-1235=-29 x$
Multiply iii by iv and we have a quadratic in $x y$

## MIDSUMMER EXAMINATIONS, 1888.

Third Class Teachers.

## ALGEBRA.

Examiners: $\left\{\begin{array}{l}\text { W. H. Ballard, M.A. } \\ \text { J. J. Tilley. }\end{array}\right.$
Note.-Only ten queations are to be attempted.
I. Simplify $(a+b+c)^{4}+(b+c-a)^{4}+(c+a-b)^{4}+(a$ $+b-c)^{4}$.
2. (a) A cellar, $a \mathrm{ft}$. long, $b \mathrm{ft}$. wide, and 10 ft . deep, is excavated at $c$ cents per cubic yard ; find the cost (in dollars) of doing the work.
(b) A wall, $x \mathrm{ft}$. long, $y \mathrm{ft}$. high, and $z \mathrm{ft}$. thick, contains $m$ bricks, each $a$ inches long and $b$ inches wide ; find the thickness of each brick.
3. Show that $x$ is a factor of $\frac{1}{2} x(y+z)\left(y^{2}+z^{2}-x^{2}\right)$
$+\frac{1}{2} y(z+x)\left(z^{2}+x^{2}-y^{2}\right)+\frac{1}{2} z(x+y)\left(x^{2}+y^{2}-z^{2}\right)$.
Find the other factors and reduce the expression to its simplest form.
4. Simplify
$\frac{2 p+r}{r-q}-\frac{q(4 p+3 r)-r(p+r)}{p^{2}-q^{2}}+\frac{(p-q+r)^{2}}{p^{2}-q^{2}}-1$
5. Divide $a^{4}(b-c)+b^{4}(c-a)+c^{4}(a-b)$ by $(a-b)$ $(b-c)(c-a)$.
6. What value of $x$ will make $\frac{6}{8}\{5(5 x-4)+3(3 x-2)\}$ exceed $\frac{1}{6}\{4(4 x-3)+2(2 x-1)\}$ by $4\{4(6 x-5)+$ $3(7 x-6)\}$ ?
7. Multiply

$$
\frac{a^{2}-(b+c)^{2}}{a^{2}-(b-c)^{3}} \div \frac{b^{2}-(c-a)^{2}}{b^{2}-(c+a)^{2}} b y \frac{c^{2}-(a-b)^{2}}{c^{2}-(a+b)^{2}}
$$

8. Find $x(I)$ when

$$
\frac{x}{x+b-a}+\frac{b}{x+b-c}=1
$$

(2) when $2 \cdot 1 x-3 \cdot 4=\cdot 02 x+3 x-2 \cdot 688$.
9. Factor $x^{3}-19 x-30, a b^{2}+b c^{2}+c a^{2}-a^{2} b-b^{2} c$ $c^{2}$ a,
$a b c-x^{3}+a x(x-b)+b x(x-c)+c x(x-a)$.
Io. The aifference between the squares of two consecutive numbers is 987 ; find the numbers.
II. A and $B$ had equal sums of money. $A$ then spent $\$ 55$ and $B \$ 68.50$. It was then found that one had two-thirds as much as the other. How much had each at first?
12. A speculator bought a house, expended $\$ 800$ in repairs, paid one year's taxes at the rate of 15 mills on the dollar (estimated on the buying price), and then sold it for $\$ 5346$, making to per cent on his total outlay. Find the buying price.
13. Find two numbers whose sum is 503 , such that four-fifths of the greater exceeds five-eighths of the less by seven times their difference.
14. A number consists of two digits, one of which ; the square of the other. If six times the greater digit be added to the number, the digits will be inverted. Find the number.

## THIRD CLASS ALGEBRA.

1. Expanding the first and following brackets, we get $\mathrm{a}^{4}+4 \mathrm{a}^{3}(\mathrm{~b}+\mathrm{c})+6 \mathrm{a}^{4}(\mathrm{~b}+\mathrm{c})^{2}+4 \mathrm{a}(\mathrm{b}+\mathrm{c})^{3}+(\mathrm{b}+\mathrm{c})^{4}$


## And the sum of these is

$$
4\left(a^{4}+b^{4}+c^{4}\right)+24\left(a^{2} b^{2}+b^{2} a^{2}+c^{2} a^{2}\right)
$$

2. (a) $\frac{b}{270}$ abc. (b) $1728 x y z \div$ mab.
3. Put $x=0$, and the expression becomes $=0, \therefore x$ is a factor, and therefore $x y z$ is a factor, for the quantities $x, y, z$, are symmetrically involved. But the whole expression is of four dimensions; there must be another symmetrical factor of one dimension. The only possible factor of this kind is $x+y+z$. Thus the expres. sion is of the form $N(x y z)(x+y+z)$ when $N$ is some arithmetical quantity. Putting $x=y=z=2$, we find $\mathbf{N}=2$, and the expression $=$

## $2 x y z(x+y+z$.)

OTHERWISE: Remove the common factor $\frac{1}{2}$
Collect the coefficient of $x$ throughout. This is
$(y+z)\left(y^{2}+z^{2}-x^{2}\right)+y\left(z^{2}+x^{2}-y^{2}\right)+z\left(x^{2}+y^{2}-z^{2}\right.$. Thus we get $2 x y z(y+z)$; the coefficients of $y$ and $z$ are symmetrical, viz., $2 x y z(z+x)$ and $2 x y z(x+y)$; and the whole expression $=2 x y z(x+y+z)$ when the factor $\frac{1}{2}$ is
restored. restored.
4. Add the first, second, and fourth terms, and the sum is the same as the third term ; total $={ }^{2}(p-q+r)^{2} \div$
5. $\mathrm{a}^{4}(\mathrm{~b}-\mathrm{c})+$ etc. If $\mathrm{a}=\mathrm{b}$, this vanishes, $\therefore(\mathrm{a}-\mathrm{b})$
$(\mathrm{b}-\mathrm{c})(\mathrm{c}-\mathrm{a})$ is a divisor. The quotient must be sym. metrical in $a, b, c$, and. The quotient must be sym-
$\mathrm{a}^{4}(\mathrm{~b}-\mathrm{c})+\mathrm{etc} .=(\mathrm{a}-\mathrm{b})(\mathrm{b}-\mathrm{c})(\mathrm{c}-\mathrm{a})\left\{\mathrm{P}\left(\mathrm{a}^{2}+\mathrm{b}^{2}+\mathrm{c}^{2}\right)\right.$
$(b-c)+e t c .=(a-b)$
$+Q(a b+b c+c a)\}$

Put $c=0$, and divide through by $a b(a-b)$
and $\left(a^{2}+b^{2}\right)+a b=-\left\{P\left(a^{2}+b^{2}\right)+Q(a b\}\right.$
$-\left(a^{2}+b^{2}+c^{2}+a b+b c+c a\right)$,
OTherwise : $-a^{4}(b-c)-a\left(b^{4}-c^{4}\right)+b c\left(b^{3}-c^{3}\right):(b-c)$
$a^{4}-a\left(b^{3}+b^{2} c+b c^{2}+c^{3}\right)+b(b)$ $a^{4}-a\left(b^{3}+b^{2} c+b c^{2}+c^{3}\right)+b c\left(b^{2}+b c+c^{2}\right) ;$
$a\left(a^{3}-b^{3}\right)-a c\left(b^{2}+b c+c^{2}\right)+b c(6$ $a\left(a^{3}-b^{3}\right)-a c\left(b^{2}+b c+c^{2}\right)+b c\left(b^{2}+b c+c^{2}\right)$
$a\left(a^{3}-b^{3}\right)-c\left(a^{2}\right)$ $\begin{aligned} & \mathbf{a}\left(\mathbf{a}^{3}-b^{3}\right)-c(a-b)\left(b^{2}+b c+c^{2}\right) \\ & a\left(a^{2}+a b+b^{2}\right)-c\left(b^{2}+b c+c^{2}\right)\end{aligned} \quad:(a-b)$ $a\left(a^{2}+a b+b^{2}\right)-c\left(b^{2}+b c+c^{2}\right)$
$\left(a^{3}-c^{3}\right)+b^{2}$ $\left(a^{3}-c^{3}\right)+b^{2}(a-c)+b c(a-c)$
$a^{2}+b^{2}+c^{2}+a b+b c+c a$, as before.
6. Form the equation, reduce, and combine, and we)
have
$\frac{5}{5}(17 x-13)-\frac{1}{3}(10 x-7)=\frac{4}{7}(45 x-38)$, whence $x=1$.
7. Invert the second expression, factor all the numerators and denominators. Three factors cancel, and the
result is
$(a+b+c)(a-b-c)(a-b+c) \div(a+b-c)^{3}$
8. (i) Clear of fractions and weget
$(x+b)^{2}-c x-a b=(x+b)^{2}-a x-a b-c x-b c+a c$
whence $x=c(a-b) \div a$
(ii) Multiply through by 1000 , and
$2100 x-3400=20 x+300 x-2688$, whence $x=1788$
(ii) $(a-5)(x+2)(b-x)(c-3)$; (ii) $(a-b)(b-c)(a-c)$
0. $x^{2}(a-x)(b-x)(c-x)$.

IO. $x^{2}-(x-1)^{2}=987$, whence $x=494: 494$ and 493 .
II.
11. $\frac{3}{}(x-55)=x-68$. 50 . whence $x=\$ 97.50$.
12. $\frac{11}{0}\left(x+800+\frac{15 x}{1} \frac{x}{0}\right)=5346$, whence $x=\$ 4000$.
13. $x+y=503$.
13. $x+y=503 ; \frac{4}{5} x-\frac{5}{8} y=7(x-y)$. From the second
$x=\frac{25}{28} 58 y$. Substity $x=\frac{25}{2} 5 y$. Substitute this in the first, and
$y=248, x=255$
$y=248, x=255$.
14. Let $x=$ units, $x^{2}=$ tens $; x+10 x^{2}=$ No.
solution.
Let $x=$ tens, $x^{2}=$ units $;$ Io $+x^{2}=$ No.
$\therefore 6 x^{2}+$ IO $x+x^{2}=10 x^{2}+x$, whence $x=$

## CORRESPONDENCE.

We here acknowledge somewhat tardily the letters Mr. C. Rose ing several months past.
Mr. C. Rose, Inkerman, solved No. 28 of the March
issue. issue.
Mr. F. Wright, Priceville, sent an interesting article on Geometry, Priceville, sent an interesting
We had already same ground, aldy prepared an article covering much the space. D.
D. S., Kelso, solved No. 44-two problems. The latter of these is constantly sent by correspondents. No. 143, p. 274, H. Smith's Arithmetic. We repeat the Editor's solution, given Jan. Ist, I 888 :-To avoid frac-gals.--say 20 gallons. .-say 20 gallons.

i.e., 40 gals. - rs.)

No. hrs.
Nals. $\times$ No. hrs $=20$ gals -4 gals $\times$
Nals.
$\therefore 40$ gals. $=20$ gals +6 gals $\times$ No. hrs.,
$\mathrm{Mr}_{\mathrm{R}} \mathbf{0} 20$ gals. $\div 6 \mathrm{gals} .=$ No. hrs. $=3 \frac{1}{3} \mathrm{hrs}$.
Mr. James FLANAGAN, Iroquois, solved these two problems. Mr. Alfred S. SHadd, Raleigh, solved 44 and 47, all parts. An unsigned letter also contained
the solutions to T. Cotringham these. G.E.H., Kingsville, and Mr. which will have to wait Lothian, sent problems, some of pear. $\mathrm{M}_{\mathrm{R}}$. Rive wait a few weeks before they can apelegant Mr. Richmond, Marnoch, also sent some elegant solutions. All these kind friends have assisted the Editor, especially by showing the class of
work best Work best adapted to the wants of our readers. Teachers of Ontario, if you want a really good professional journal, you must lend a hand to make it professional member the dictum of Captain Miles Standish :
"If you want a thing well done you must do it yourself,
You must not leave it to others." You must not leave it to others."

## Music Department.

All communicat ons for this department may, until further notice, be addressed to A. T. Cringan, 23
Avenue St., Toronto.

## SIGHT-SINGING FROM NOTATION.

 one thing at a time.Thorough systematic drill in sight-singing should form an important part of every lesson. During the earlier lessons it will be found advisable to write the notes on the blackboard without any regard to rhythm, in order that undivided attention may be given to the difficulties of tune.
As in modulator drill, repetition or running in
grooves must be carefully avoided grooves must be carefully avoided. In order to
secure variety, secure variety, extracts from songs which are un-
familiar may be taken and interspersed with phrases of the teacher's own composition.

SHORT EXERCISES ARE BEST.
As a rule, the exercises should be short and to the point. Long exercises containing difficult intervals are dry and uninteresting, and are productive of little else but listlessness and restlessness. On the contrary, when short exercises containing each a single difficulty are used, the interest can
be sustained for a much longer period. At the buccesstul termination of each exercise there is a feeling that -something has been accomplished, some difficulty overcome, and fresh difficulties are attacked with vigor and certainty.

Individualizing should be encouraged from the earliest lessons. At first nervousness and timidity will prevent pupils from volunteering to sing in presence of their classmates, but a little discreet persuasion will soon convince them that individual singing is no more difficult than individual reading. Until a sufficient degree of confidence has been developed, it will be necessary to have the exercise sung by the entire class before being sung by individual pupils. When this stage has been reached, individual sight-singing may be attempted. While one pupil is reading the exercise, the others will be watching closely and eagerly listening for mistakes. This will be found an excellent means of cultivatiog habits of obse vance and attention in sight-singing. The use of colors as exemplified below will be found invaluable.
EXAMPLES OF METHOD-FOR JUNIOR FIRST BOOK CLASS.
Teacher writes on board
dmdsmdsd
Sings doh, key D, pupils imitate.
Teacher-Now sing from my pointing.
Class sing $d m$ correctly but sing second $d$ like soh.
Teacher erases first and second $d o h ' s$, and rewrites with bright red crayon. Can you tell me what color this first doh is written with ?
Class (eagerly)--Red.
Teacher-And is the second $d o h$ of the same color ?
Class.—Yes !
Teacher.-If the color of both doh's is the same do you not think that the sound of both should be the same?
Class. Yes; they should have the same sound.
Teacher. Now try again, and be careful to give the second doh the same sound as the first.
Class sing correctly until second $s$ is reached.
Teacher writes both soh's with bright yellow crayon and reasons as before. Also draws attention to bright character of soh.
When the exercise has been correctly sung by the entire class, the boys and girls may be asked to sing separately, next by one row at a time, and finally by individual pupils.
Exercises for sight-singing :
keys $C$ to $G$.
dssmsdmmd $m d s m d d s s d$ ssmsddmsm dmdsmssdd ddmdsmdsm
keys E to G .
d $s_{1} d m s m 8 s d$
$d m d s_{1} d s_{1} d m s_{1}$
$m \mathrm{~d} \mathrm{~s}_{\mathrm{d}} \mathrm{md} \mathrm{s} \mathrm{s}_{\mathrm{i}} \mathrm{d} \mathrm{m}$
$s m d s_{1} d m s_{1} s_{1} d$
keys $C$ to $E$.
$d m s d^{\prime} d^{\prime} s m 8 d l$
smdis didls sm $\mathrm{mms} \mathrm{d}_{\mathrm{m}}^{\mathrm{m}} \mathrm{m} \boldsymbol{s} \mathrm{d}$ dismsd dismdl
CHANGE KEY FREQUENTLY.
Whenever an exercise has been satisfactorily sung on any one key, change the key, giving the sound of the new doh firmly, and repeat the exercise. Pupils should be trained to sing in any key from the outset. Exercises which contain the
lower soh ( $\mathrm{s}_{\mathrm{l}}$ ) and the upper doh (d!) must not be lower soh ( $\mathrm{s}_{\mathrm{l}}$ ) and the upper doh (d!) must not be voices.

QUERIES.
Where can the colored crayons mentioned in last number be procured ?-Teacher.

Ans. Messrs. Thompson \& Sons, Artists' Colormen, Yonge St., Toronto, have procured a supply of colored crayons for every tone of the scale. The price is about 24 c . per doz. for the bright red, all others 12c. per doz.
As I am anxious to learn the Tonic Sol-fa system, would like to know whether there will be a summer school held same as last year, and what the cost is likely to be.-Schoolmarm.
Ans. The Summer School of Music under the auspices of the Education Department will be held during the three weeks commencing July 2oth, at Niagara-on-the-Lake. All classes are free to teachers, and the promoters are endeavoring to arrange for special cheap railway rates. The only expense in connection with the school will be for board, but special arrangements are being made for this also. Further particulars will be advertised in the Journal.

## EDITORIAL NOTES.

The following which we clipped the other day from an exchange is instructive and appropriate to the Arbor Day season :-
"Much has been said and written upon the influence of forests upon climate. To sum up all the appreciable actual results, they are about this. While their presence does not increase the amount of rain-fall in the least, it tends to economise that which falls, preventing it from flowing directly off into the streams, and thereby lessens the violence of floods. Evaporation from the myriad leaf surfaces doubtless lowers the temperature in summer, in the immediate vicinity of forests, and they break the force of winds which otherwise might develop into destructive tornadoes. In these and many other ways the presence of forests tends to mitigate the extremes of climate and to neutralize its ill effects."

The following from the Kingston Whig of the 17 th inst., will be of interest to many of our readers. We have not seen the papers referred to, but are glad to note that Queen's is throwing its influence in favor of reform in the methods of studying and teaching the English Classics :-
" Last Saturday a set of Professor Cappon's examination papers on English language and literature were sent to John Seath, B.A., one of the High School inspectors, and an examiner also, in English, in Toronto University. Acknowledging the receipt of the question papers Mr. Seath writes: 'Allow me to say that in my opinion they are admirable. Queen's University is, indeed to be congratulated on having secured a professor of Mr. Cappon's ability and culture. It is clear from these papers that he sympathises with the modern views which are now held by our leading English scholars; and all who are in favor of putting the study of the English language and literature on a proper basis will welcome to their ranks so powerful an ally in their struggle against antiquated ideas and antiquated methods-a struggle, which I am sorry to say is by no means at an end.' The phrase 'antiquated ideas, and antiquated methods" has all the piquancy of the 'retort courteous, to Sir Daniel Wilson, who a short time ago, spoke of the examination questions of $\mathbf{M r}$. Seath as ' obscure puzzles.' "

Do noble deeds-not dream them all day long. -C. Kingsley.
Ir is possible to temper authority with an unassuming demeanor.-Bain.
To tell a lie is like the cut of a sabre; the wound may heal, but the scar will remain.-Saadi.

## BUSINESS NOTICES.

We direct attention to the announcement of the merits of the "Concise Imperial Dictionary." It is our intention to handle this Dictionary in connection with the Journal, and we offer it in the best binding, and the Educational Journal for one year, both for $\$ 5.50$, plus 14 cents for postage. Subscribers who are paid in advance may deduct the amount they paid for one year, send the balance, and have the book at once. This gives the party the Journal for $\$ \mathbf{1 . 0 0}$.

We desire to repeat our request that Inspectors and Secretaries of Associations send us programmes of their forthcoming Conventions as soon as issued. We wish to make announcements of such Conventions, with somewhat fuller particulars than may be found in a Departmental list. Moreover, as this list contains only the names of Inspectorates in which Teachers' Institutes are held, a great many Conventions of Teachers, not being upon the list, are unknown to us, and unannounced. Give us an opportunity to make your operations known to the whole body of Teachers, all of whom take an interest in what concerns the profession. Also, please send us a summary of proceedings.

## TEACHERS' INSTITUTES.

1. Elgin, at St. Thomas, May 9 th and roth.
2. Lennox and Addingion, at Napanee, May 9th and roth.
3. *Durham, May 9th and roth.
4. *West Bruce, May 16th and 17 th.
5. East Victoria, May 16th and i7th.
${ }^{*}$ No programme received.
Mr. Inspector Tilley will attend the Conventions of Durham and West Bruce ; and Mr. W. Houston, M.A., that of Lennox and Addington. A lecture will be delivered by the visiting Inspector at each meeting, on the evening of the first day. A public entertainment will be given in connection with the Elgin meeting, on the evening of May 9 th. Readings from Shakespeare, by Mr. R. Lewis, Elocutionist, late of the Toronto Normal School, will be given at the East Victoria entertainment, on the evening of May 16th. Mr. Lewis will also take several subjects at the Convention.

Editorial.

TORONTO, MAY 1, 1889.

## BE MERCIFUL.

"The merciful man is merciful to his beast," says the ancient wise man. We have received some copies of Our Dumb Animals, an attractive little paper published in Boston, by the Massachusetts Society for the "Prevention of Cruelty to Animals." This and kindred societies, of which we have happily some in our own cities, are engaged in a noble work, and Our Dumb Animals is an admirable auxiliary. We wish this and other juvenile papers of like spirit could find their way into every school and home in the land. We have no doubt that the interesting new paper for boys and girls which is now being published at this office, though it is not distinctively an organ of a humane society, will exert a salutary influence in this direction, and do, to some extent, for Canada what Our Dumb Animals is doing for Massachusetts. We can speak thus freely of School Work and Play, a copy of which is to accompany this number of the Journal, because the Editor of the Journal has no connection, save one of hearty sympathy and well-wishing, with it. This being the case, we can freely express our honest conviction that the wide circulation of such a paper, conducted in the spirit in which we know it will be conducted by our 'fellow-worker on the columns of
the Journal, will be salutary in its influence upon the coming men and women of Ontario. Without a particle of self-interest at stake, we should regret its failure for want of support, as a serious educational loss to the country.

This is, however, a digression which we had no intention to make when we sat down to write. We meant merely to say a word suggested by the copy of Our Dumb Animals before us, in regard to the great need that parents and teachers should teach the boys, and girls, and especially the boys, under their charge, to "love mercy" to the dumb animals. Of the girls we have little fear. The influences which, for the most part, surround them, as well as the greater gentleness and tenderness which are one of the peculiar charms of the womanly nature, will generally save them from forming habits of even thoughtless cruelty. A cruel girl or woman is a monstrcsity in nature. But with boys the case is different. Whether the impulse to "go out and kill something," which is said to be a characteristic trait of the Englishman, is innate, or merely the result of surrounding influences and false teaching in early youth, there can be no doubt of its strength and prevalence. It is a noxious plant, which will, unless restrained, soon shoot, as Cowper teaches, into "luxurious growth." We cannot but regret that the Bill for the prevention of pigeon-shooting from traps, introduced into Parliament by Mr. Adam Brown, of Hamilton, failed to pass. There is something so cowardly, as well as cruel, in the practice, that it seems unworthy of a manly man, not to say a merciful Christian.

There are many cruelties of a minor, yet no doubt to the poor animals terribly real kind, which are the result of thoughtlessness. We might instance the prevalent fashion of the tight check rein on carriage horses. No thoughtful person can observe the uneasy and painful tossing of the head which the horse so pinioned generally keeps up, or the touching eagerness with which he stretches his neck and lowers his head to the very ground when released, and doubt that the check reign is an instrument of torture. As a matter of taste, it distorts the neck and destroys the graceful curves which constitute one of the chief beauties of the perfect animal. And yet, through sheer want of thought, or blind adherence to a stupid custom, people go on perpetuating a cruelty against which their better natures would revolt if they would but give a few moments of serious attention to the matter. Teachers can help the young to form no better habit than that of thoughtfulness in regard to the effect of their actions both upon other persons and upon the inferior animals. The mute helplessness of the latter should appeal not in vain to all that is noblest and most generous in our natures.

Persons not naturally unfeeling, often, we suspect, fortify themselves in acts of cruelty to brutes, with the thought that nature's example is on the side of indifference to the pain these suffer, as witnessed by the ruthlessness with
which the stronger among them maim and prey upon the weaker. There is much reason to doubt as to the reality of much of this pain. A cat playing with a mouse before devouring it, seems to the onlooker the very incarnation of cruelty. Careful observation, however, affords good reason to suppose that there is little or no real suffering in such cases. Nature seems to have mercifully provided against it by causing either the sudden terror or some occult influence proceeding from the stronger animal to produce a paralysis of feeling on the part of the weaker. Persons have rescued mice which seemed unable even to crawl away from their tormentors, only to find them apparently unhurt, and as active as ever, after being for a few moments out of sight of the foe. It is said that African travellers who have been caught and maimed by lions or tigers declare that they felt no pain, but only a kind of dreamy curiosity while in the grasp of the devourer.
Be that as it may, it is ill to reason from the blind and conscienceless instincts of the lower animals to the being endowed with rational and moral faculties. Nor should it ever be forgotten that pity and mercy and other noble attributes are to be inculcated more for the sake of the child than for that of the brute. No one can doubt that habits of cruelty are degrading. An unfeeling man can never be a high type of man. Persons of refined and elevated feelings would sbrink from such an one, though he had the intellect of a Bacon or the manners of a Chesterfield, were such a combination conceivable. If we would mould the young of ourgeneration after the highest models, if we would have them grow up into brave, high-minded, large-hearted men, we cannot too assiduously train them to shun, not only every species of cruelty, but every form of selfish disregard for the comfort and convenience of those around them. Opportunities for effective lessons in this direction will be abundantly offered in the incidents of daily life in the schoolroom and playground.

## Arbor Day Papers.

## ARBOR DAY NOTES.

by J. dearness, london.
Evergreens.-Some school yards are now surrounded with a fine row of well-established deciduous trees, chiefly maple, and with commendable zeal those interested are planting spruce or other evergreens in the row,alternating maple and spruce. But it is a great mistake to plant evergreens in this way. Their use is rather for Winter shelter than for Summer shade, and hence, it is better than the order above mentioned, to plant them in clumps, in close double rows or in hedge manner, on the exposed sides of the grounds, generally the north and north-west. Tall evergreens on the south side of a yard keep it cold and damp late in the Spring, beside occupying much of the very ground that in the Summer would be the shadiest resting spots for the child-

Annual Flowers.-In an Arbor Day circular to the East Middlesex Schools the following annuals are recommended for beds and borders: Aster, Antirrhinum, Chrysanthemum, $\begin{aligned} & \text { Salpiglossis, } \\ & \text { Heabiosasum (dbl.) }\end{aligned}$ Calendula,
 Calliopsis.
The above are very hardy and beautiful annu-
als, erect growers, and profuse bloomers.
Dianthus Chinensis, Eschscholtzia, Gaillardia, Mignonette, Pansy,

> Phlox Drummondii, Verbena, Morning Glory, climber. Sweet Pea, Scarlet Runner, ",

A Seed Firm in London agreed to supply, of the best quality, packets of seed of the first ten for twenty-five cents, and of the whole list for fifty cents.
Flower seeds should be pressed firmly into the prepared soil, and covered with a sprinkling of pulverized earth. When the seeds do not come up the usual cause is too deep covering. The plants should be transplanted or thinned out from eight inches to one foot apart.
Loss of Deciduous Trees.-There are two preventable causes that contribute to the death
of large numbers of deciduous of large numbers of deciduous trees that are
planted in school grounds. One is too copious and constant watering in May and June which may cause the decay of the rootlets, or if the soil is clayey, packs and hardens it around the root so that it dries and cracks during the hot midsummer vacation months, causing the root to perish for lack of moisture. Watering, if done at all, should be done thoroughly, but not frequently. The day after the watering the surface soil should be stirred to aërate it and make it retain the moisture. Throwing water on the branches and trunk when the sun is not shining revives and stimulates the growth of the tree.
The other cause of loss that might be prevented is the girdling of the cambium layer near the root by insect borers. I have this Spring seen many trees that last Summer seemed to be well-rooted, of which the dried bark is peeling
off near the root. Many of off near the root. Many of these will start with
feeble growth and die before the Summer is
The presence of the little flat-beaded borerthe larva of a small beetle-will, on close examination at or near the root, generally be detected by the castings (grains of wood-dust) or by spots or lines along the bark that look as though the substance under it were decaying so that the bark is flattened or contracted. Cutting the bark at such places will reveal the burrow, hav-
ing found which the borer may be probed and ing found which the borer may be probed and
withdrawn by inserting a wire that will bend to withdrawn by inserting a wire that will bend to
follow the curves in the line of the insects' work.

## OUR ARBOR DAY.

еу ввве.

In a few days we shall celebrate our Fifth Arbor Day in our school-ground.
At eight o'clock, I wait at the gate for a group of twenty who come hurrying along (earlier and more rapidly than is their custom) laughing and chattering so busily and noisily that any one may
perceive that some unusually interesting subject perceive that some unusually interesting subject
is being debated. There in front cheeked lads prancing four of my smallest rosycheeked lads prancing and kicking-having been
ing a home-made wagon with a deep box filled to the brim with plants-contributions from the gardens of the section. Pumpously handling the lines walks behind them one of the jolliest, liveliest drivers anywhere to be found.

Trooping along come the others, some with spades, some with hoes, some with match boxes, horse-shoe nail boxes, salmon cans, etc.

Before they reach me the driver calls, "Good morning, Miss B-, what do you think of my team?" And as they pass through the large gate each one has a surprise for me. "I have a geranium," "Robbie has a package of balsam seeds," "Mamma sent you this cactus." Even the ponies are moved by the enthusiasm and talk.

In like happy mood come the other flocks from the three remaining roads and what discussions are held till the bell rings for nine. Then I read a few verses and after the beautifully solemn prayer my little army of helpers is found to number fifty-four. They listen-I briefly sketch the day's work and assign duties.
A couple of boys have charge of each wheelbarrow and a dozen assistants, and every stick, stone and scrap of paper is picked up and thrown in a heap outside the yard. Another party with half an hour's work make our large wood-pile neat.
The larger boys remove the stones that surround the five flower-beds, and which were placed there to prevent the grass encroaching.
The covering of pea straw which protected the plants from the Spring frost is gathered and thrown on the rubbish heap.
The roots that have grown too far are lifted and divided, and the several parts laid with the new plants in the pump-house till the ground is prepared for them.
The earth is then loosened with spade and hoe, the lumps crumpled and the stones replaced.
A couple of new beds are now dug and the boys haul many wheelbarrow loads of earth obtained outside of the yard, for our down-trodden soil discourages any plant but the thistle or wild camomile.
An hour's rest meets with a welcome, and the dainty dinners taste very good. The mammas have received hints to take particular pains to prepare a tempting luncheon.
We go to work again at one, planting here a shrub, there removing a burdock or levelling a knoll. The flower-boxes and cans are taken in a wheelbarrow to the creek and filled with rich loam. I mix sand with it and the seeds are sown-a slip of paper attached to a stick telling us the variets.

At two the little ones are so wearied that I gather them and say: "You have worked so well that I think you must bave the rest of the day, so you may go away home."
With thirty good-byes ringing in my ears we work on putting in the roots and sowing seeds, chatting pleasantly about the plants, their names, their habits, their relatives, the time of flowering,
The heap of rubbish is lighted and we suspend work to see its end.

Our work is almost done-the school-room floor has been swept-we dust everything carefully and place the boxes with the newly-sown seeds in the windows along with the plants which remain of last year's window-garden. These have been taken care of by pupils in their homes during the Winter.

The clean white blinds with turkey-red curtains are put up, and as we close the door we cannot resist the temptation to open it once more for another peep - then the last good-bye is said and I wend my way slowly across the short path home with such a happy weariness-won-
dering if in all the world there are such dear
little folks as are mine-and thinking how rich I am in possessing the love of so many true little hearts.

## SUITABLE PLANTS.

by bebe.
The children love bright-colored flowers, so I say sow plentifully of sweet-peas-as many colors as you can get. Double and single hollyhocks, which will not flower till the following year, but reward patience for waiting are worth trying. I shall mention a few I found good :-
I. The Marvel of Peru, or the Four O'clock. For five cents half a dozen varieties are secured.
II. Marigolds.
III. Candytuft.
IV. Godetia.
V. Asters-that we may have something cheerful late in the Fall.

## VI. Mignonette.

VII. Maid o' the Mist.
VIII. Morning Glories.
IX. Musk-pink and white.
X. Honesty-a curiosity, owing to its satiny seed vessels.
XI. Larkspur-single or double-pink and purple.

For early Spring I find the old-fashioned plants very bright.
I. Daffodils.
II. Daisies.
III. Pinks.
IV. Iris-blue flag.
V. All the roses to be had.
VI. Lilies-Orange-White-Tiger.

We are extremely proud of our Orange Lilies, whose roots came from Ireland some time ago. VII. Cowslips.
VIII. Creepers-many very pretty. Try the Virginia Creeper, if nothing else.

## HOW TO AWAKEN INTEREST.

How are we to interest boys and girls in the neatness of school and yard ?
I. The teacher must be intensely interested and enthusiastic.
II. The pupils must take an active share in the work done. For instance, Arbor Day must be thoroughly observed, and each pupil given a part of the work. Before the day, long before, ask the pupils to keep match-boxes, etc., as receptacles for plants.
III. Cultivate a love for beauty and order, by requiring it in all their work.
IV. Impress upon them that it is their scboolground and school-yard.
V. Do not be afraid to try flowers outside and inside. I never had any trouble in preventing little hands from plucking them.
VI. Examine with the children flowers and leaves. Show them mosses and lichens. Give practical lessons in Botany. Do not be afraid to express your admiration for the beautiful.
VII. Be very particular in regard to your own dress and manners, so shall the pupils be in regard to theirs.
VIII. Visit the trees and flowers in thegrounds, followed by a host of little inquisitives, and chat freely about what you see.
IX. All through the Summer wear a bouquet, be it nothing but the green cedar or the field clover. Thank your pupils for their presents of flowers. Show them where to find the violets, spring-beauty, dog-tooth violet. Keep on your desk or in the window, a vessel filled with butter-cups, marsh marigold, violets or trillium, as they come.

## School-Room Methods.

## PRIMARY GEOGRAPHY.

## wind.

by Eliza h. MORTON.
"Author of Potter's New Elementary Geography."
Teacher.-What have I in my hand?
Pupil.-A whirl-i-gig.
Teacher.-You can make a toy like this very easily. After school-hours I will show you how to make one. [Cut a square sheet of paper from the corners nearly to the centre and fasten one side of each divided corner through the centre of the paper to a stick.] What makes this toy whirl around?

Pupil.-The air.
Teacher.-When I hold it still it does not turn around.

Pupil.-It will if you hold it in the wind.
Teacher.-Is wind air ?
Pupil.- Wind is air in motion.
Teacher.-I see a picture in my mind; as I tell about it, try to form one like it in your mind. The branches of the trees sway and bend toward the east. The dust whirls along the street in clouds. An old lady is walking along very rapidly, in fact she cannot seem to go slowly; occasionally she turns and walks backwards, her garments cling to her form, and away goes her umbrella turned wrong side out. The hens are running in all directions and their feathers seem to stand up straight. Bits of paper go whirling through the air and a boy is running after his hat. What shall I name my picture?
Pupil.-A windy day. I can see it just as you
did.
Teacher.-I am glad to know that, for mental pictures are often more beautiful than oil paintings. I will now make a picture on the blackboard. (Teacher sketches a rude outline of a house and with red crayon represents flames coming through the roof.) What have we here?

Pupil.-A house on fire.
Teacher. - What have you learned about hot air?
Pupil.-We have learned that hot air rises.
Teacher.-As the flames heat the air near this house what movement will the hot air make?

Pupil. - It will rise far above the house.
Teacher. - What will take the place of the hot air?

Pupil.-Cool air will rush in and take its place.
Teacher. - You can now tell why the wind blows harder when a house is on fire than at other times. In what other way is the air heated?

Pupil.-By the sun.
Teacher.-Yes, the sun heats the earth and the earth sends back the heat into the air. If the air was everywhere of the same degree of heat would there be wind?

Pupil.-I think not, unless it blew upward to the sky.
Teacher.-We find that the air is not everywhere of the same degree of heat. What have you learned about the air on the top of high mountains ?
Pupil.-We have learned that the higher we ascend the cooler the air becomes.

Teacher.-The land takes more heat from the sun than the water does; but cools off quicker. During the day which would be cooler, the ocean or the land?

Pupil.-The ocean.
Teacher.-Which would be cooler near evening. Pupil.-The land.
Teacher.-Why?
Pupil.-Because the land cools off quicker than the ocean.
Teacher.-From which then would the warm air rise near evening.

Pupil. - From the water.
Teacher. - Would the wind blow from the water or toward the water near evening?
Pupil.-Toward the water.
Teacher.-Why ?
Pupil.-Because the cool air must flow from the land to take the place of the warm air rising from the water.

Teacher. - What would be a good name for a breeze blowing from the land.

Pupil.--I should call it a land breeze.
Teacher.-During the day does the wind blow from the ocean or toward the ocean?

Pupil.-It blows from the water.
Teacher.-Why ?
Pupil.-Because the earth is warmer than the ocean and the cool air must blow from the water to take the place of the warm air rising from the land.
Teacher.-What is a good name for a breeze blowing from the sea?

Pupil.-Sea breeze.
Teacher.-Is wind of any use ?
Pupil.-It helps vessels along and turns machinery.

Teacher.-It drives away foul odours and keeps the air pure. It also acts like a mother and takes the white-robed vapor in its arms and carries it over the earth. We shall find that currents of air are constantly traveling to and fro.

Pupil.-I should think they would run against one another.
Teacher.-One breeze often meets another face to face and then have a squabble and stir up a regular whirlwind.
Pupil. -I have seen a whirlwind in the street. The leaves flew round and round.
Teacher.-You may have seen a very small whirlwind, but when a strong wind meets another strong wind they wrestle together and sometimes move along for miles tearing up trees, overturning houses and doing much damage.

Pupil.-Is a whirlwind a cyclone? I have heard father tell about cyclones.
Teacher.-When a whirlwind travels in a line more or less curved it is called a cyclone. I will read you a brief acoount of a cyclone that swept through a western town not long since. (Teacher reads from a newspaper.)

Pupil.-That was terrible. I have heard father say that in some States the people build oyclone cellars in which to hide when they see a cyclone coming.
Teacher.-That is true, and precautions of that kind have no doubt saved many lives. Fancy a whirlwind on a sandy desert.

Pupil.-It makes the sand fly.
Teacher.-Yes, and it takes the sand in its arms and forms what is called a sand spout. Here is a picture of one.
Pupil.-Does that thing dance along over the desert?

Teacher.-Yes, very rapidly. Fancy a whirlwind on the ocean.
Pupil.-Does it take up the water as it does the sand?

Teacher.-Yes, and what shall we call it ?
Pupil.-A water-spout.
Teacher. - I will draw a picture of one on the blackboard. It seems to tie the sky and ocean together.
Pupil.-What if a waterspout should waltz into a vessel?

Teacher. -The sailors would be likely to get wet, if nothing more serious happened. Sometimes when they see one coming they discharge a gun at it and thus cause it to burst before it reaches the vessel.
You may now take your slates and copy what I write on the blackboard. (Teacher writes the following topics:)

WIND.

1. Cause.
2. Whirlwind.
3. Uses.
4. Sea Breezes.
5. Cyciones.
6. Land Breezes.
7. Water-spouts.

At your seats you may write all you can about each of these topics and after your work has been corrected you can copy it into your blank-book and illustrate your litlle story with pictures like these I have made on the blackboard.
The permission to illustrate their written work with colored crayon sketches will be highly appreciated by the children, and they will soon learn not only to reproduce the blackboard drawings, but also to attempt original illustrations.-Popular Educator.

The following is said to be the only verse in the Bible that contains the whole alphabet :
"And I, even I, Arlaxerxes, the king, do make a decree to all the treasurers which are beyond the river, that whatsoever Ezra, the priest, the scribe of the law of the God of Heaven, shall require of you, it be done speedily."-Ezra, vii. 2I.

## Special Papers.

PROPER CHARACTER OF EXAMINATIOŃS IN FRENCH.*

What examinations in French should be is determined by what teaching in French should be. And since the object of a course in French should be to bring the student as near as possible to the point where he shall be able thoroughly to understand and appreciate all that is said or written in French, an examination should be for the purpose of finding out how far he has advanced on the road to that point.

In the present condition of French scholarship in this country, the following should be the only subjects at second and third class :-Departmental and all University Examinations up to the end of the second year; Composition in French, Translation into French, Pronunciation, Grammar, Translation of French into English.

The ability to compose in French, both orally and in writing, is the best test of a person's knowledge of modern French. But the difficulty of procuring suitable examiners at the local points where departmental examinations are held, will doubtless always make it impracticable to test the student's ability to speak French. Moreover, it is a very severe test, and it will probably be a good while before the ordinary student of our High Schools will be able to undergo it in a satisfactory manner. Written composition is also a very severe test, and has rarely been demanded from candidates at the primary examinations. It is time, though, that it found a place at the second class examination and all University examinations for Honors.

Translation of English into French is, after composition in French, the best test to be applied, and great stress should be laid on it. For the more primary examinations, short sentences involving a knowledge of commonly occurring words, idioms and grammatical peculiarities should be set, but care should be taken that these do not follow too closely the models set by text-books, or the effect on the schools will be to encourage "cramming." Especially reprehensible is the practice of setting the phrases to be found in such a book as De Fivas, for no candidate at that stage can know them if he has not "crammed" them. Pieces of connected composition should also be set quite early, and great care should be taken in their selection. The careful examiner will often be forced, after searching for hours, to make a piece for the occasion, which, though not being perhaps a model of English style, will be found a better test than many an extract from the great masters. He will be particularly careful not to take some difficult passage from the French author prescribed for examination, and translate it into English, and expect the candidate to re-translate it into French. The influence of such questions must be very bad on prospective candidates.

Pronunciation should be tested by oral examinations, or by dictation, wherever practicable. It is a great pity that it could not form a part at every examination. It is impossible to conceive how any one can imagine he knows anything worthy the name of French, if he is not able to pronounce it, and yet we have reasons for believing there are schools where pronunciation is not taught. Seeing there is such difficulty in applying this test at examinations, the High School Inspectors ought to be urged to insist upon the importance of it in their visits from school to school. It does not seem possible to set questions at the ordinary written examination which will be of much service.
The comprehension of grammatical principles is of great importance in understanding a language, and questions to test this comprehension should form a part of every examination. But they should be set with care. It is safe to say that no question on grammar should be asked which is not accompanied by an example or set of examples. It is proper, to demand an explanation of any construction which occurs in the text the candidates have read, or they may be asked to translate a group of

* Outline of an Address before the Modern Language Association of Ontario.
sentences into French, and then to explain the grammatical principles involved. But no question should be set of such a character as to cause intending candidates to suppose that if they merely prepare well their De Fivas, or some other treatise on formal grammar, they will be able to satisfy the examiner. It is not a parrot-llke knowledge of principles which is valuable, but a knowledge of principles which has its roots in a knowledge of
many facts.

Translation of French into English may be a useful test of the candidate's knowledge of French, and candidates and examiners should bear in mind show that he thoroughly of it. If the student can he should receive fuill cr understands the French, his English receive full credit therefor, even though It English may lack in elegance and conciseness. It is of immense importance for students to realize French, and not to bech for the purpose of knowing English, and not to become proficient in the use of English. This, no doubt, is one of the incidental advantages, but it would be a waste of time if this
were all. The use English. The way to learn to use English is to The exam
proper names and should not suppose that because the text, he has the right other allusions occur in phical, historical, right to ask all sorts of geograquestions. All that biographical or mythological questions. All that he has a right to do is to ask occurs in this particular why the name or allusion teacher should teach instance. Doubtless the iners should know there than that, but examrower than the teach their jurisdiction is narfower than the teacher's. Not all that is matter desk. Nor should the exter for the examination compare the text they examiner ask candidates to book, which text they have read with some other book, which probably very few of them have seen, concerning the place it hed to answer questions of French literature it holds in the development later in the course, Such things must come some opportunity after the candidates have had themselves. Nobody should these things for second-hand judgments. So be asked to give derivation. It is out of. So too with respect to paper, before the end place on an examination gaper, before the end of the second year. The good teacher will tell his students many interesting language, and so whet theirment of literature and that is to and so whet their appetites for the feast the good examiner is one of the characteristics of the good examiner is a becoming self-restraint. dents on a wild-goose chase intich would set stuare not competent to enter into fields which they No examination to enter.
No examination previous to the third year in the
university should touch any ground not the foregoing discussion, and the majo covered by subsequent examinations, and the major part of all of our graduates do afterwards work that the most of our graduates do afterwards should be drawn us is that we do The great lack with the whole of language to-day. But enough about the French be begun. At the But at this point new work may tions candidates may be and fourth years' examinations candidates may be expected to have read for idea of what Mediæval literature to give them some ate them into mediæval literature was, and to initiate them into the study of those wonderful changes by which the Latin language has become French. Here, too, no questions should be asked invoiving
knowledge outside of what they have read knowled not be expected to they have read. They should not be expected to know what is to be found in Diez's Grammar, or in Grober's or Korting's Encyclopædias. Nor should they read manyshort extracts from Chrestomathies or Anthologies, but some complete text or texts. They should not be expected to know something about the whole field of French literature, but short periods, or, better still, the works of a single author should be chosen
as the subject of as the subject of examination. Nothing of the nature of second-hand goods is of any value in this
commerce.

He that knows not, and knows not that he knows not, is stupid. Shun him.

He that knows not, and knows that he knows not, is good. Teach him.
He that knows, and knows not that he knows, is asleep. Arouse him.
He that knows, and knows that he knows, is

For Friday Afternoon.

GAME TO TEACH FIVE.
by Jessie norton.
One little cat in the corner,
Washing her furry face.
One little cat comes to catch her ; Two little cats run a race.

Two little cats in the corner, Each with her own plump mouse. One comes in from the door-yard; Three little cats in the house.

Three little cats on the doorstep, Warming themselves in the sur. One comes up from the cellar ;

Four little cats-such fun!
Four little cats by the window, Watching the twilight's ray. One jumps out of the basket ; Five little cats end the day. -Am. Teacher.

THE CHERRY FESTIVAL AT HAMBURG.
Hard by the walls of Hamburg town,
Four centuries ago,
Precopius his soldiers led
To fight their German foe.
Unsoothed, unmoved, in nature's calm,
The Hussite army lay,
A threatening, deadly human storm,
With Hamburg in its way.
To swift destruction now seemed doomed
The dear old German town,-
Before Precopius the Great
The strongest walls went down; And soon, upon the sott, warm air,

Came sounds of trampling feet.
The Hussites swiftly sprang to arms Their hated foe to meet.

Ready they stood to meet the charge !
The great gate opened wide;
And out there poured, not armed men ;
But, marching side by side,
The little children of the town,
Whose round eyes met their gaze
With innocence, that courage was
Unlearned in worldly ways.
The men threw all their weapons down At sight so strange and fair!
They took the children in their arms, They smoothed their flaxen hair,
They kissed their cheeks and sweet red lips, They told how, back at home,
They left such little ones as they,
And then they bade them come
To cherry orchards, close at hand;
And there they stripped the trees
Of branches rich with clustered fruit.
Their little arms with these
They filled, and with kind words of peace They sent them back to town;
And all the soldiers marched away,
Nor thought of their renown.
And now, each year in cherry time, In Hamburg we may see
The little children celebrate
This strange, sweet victory.
Again the tramp of little feet
Is heard, as side by side
They march all through the quaint old town, In childhood's joyous pride.
Again within their arms they bear Green branches, through whose leaves Ripe cherries gleam, and tell a tale More strange than fancy weaves,
About a bloodless battle fought
Four hundred years ago,
When children saved old Hamburg town By conquering its foe.
-The Peacemaker.

## A SLEEPY LITTLE SCHOOL.

A FUNNY old professor kept a school for little boys, And he'd romp with them in play-time, and he wou'dn't mind their noise;
While in his little school-room, with its head against the wall,
Was a bed of such proportions it was big enough for all.
"It's for tired little pupils," he explained, "for you will find
How very wrong indeed it is to force a budding mind;
Whenever one grows sleepy and he can't hold up his head,
I make him lay his primer down and send him off to bed!
" And sometimes it will happen on a warm and pleasant day,
When he little birds upon the trees go tooralloo-ral-lay,
When wide-awake and studious it's difficult to keep,
One by one they'll get a-nodding till the whole class is asleep !
" Then before they're all in dreamland and their funny snores begin,
I close the shutters softly so the sunlight can't come in;
After which I put the school-books in their order on the shelf,
And, with nothing else to do, I take a little nap myself!"
-Malcolm Douglas, in St. Nicholas for March.

## Hints and Helps.

## SELF-RELIANCE.

IT has been well said, that parents do their children the highest service when they teach them to rely on themselves. The pressure upon teachers is now so great, that often the thought of this high service is crowded out. The teacher plans the lessons, the study hours, the busy work. When one section is reciting, she tells the other section just what to study; or, if it is to be a time for busy work, some particular kind of busy work is assigned. If there is never a variation in this custom, there is little opportunity for developing the child's own resources.

I was pleased to see in visiting one of the Boston schools recently, that there the little children were learning to depend upon themselves. It was a primary school and it seemed to me an exceptionally pleasant one. The pupils were at work upon examples. The teacher said to them, something to this, effect: " When you finish your examples I want you to find some quiet way to entertain yourselves just as grown people do." This was to occupy the time while the slow ones were finishing the examples. After the examples were done and corrected, the teacher took a few minutes to inquire about the busy work, that had filled the waiting time. I cannot recall the questions and answers exactly, but they were somewhat like these :
"Willie, what did you find to do?"
"I had a story to read."
"Annie, what did you do ?"
"I copied some verses from my reader."
"Mabel, what did you do?"
"I wrote some Roman numerals on my slate."
"Harry what was your work?"
"I drew some pictures."
"Johs, what did you do?"
"I studied my spelling lesson."
Then the teacher had a few pleasant words to say to the children about the work, they had chosen to do, and the way in which they had done it. It is surprising to notice how few resources many grown people have, when they are left to depend solely upon themselves for entertainment. For this reason, many find it a punishment to be alone for a half day. Since this is true, it is well for little folks to learn early to answer for themselves the question : "What shall I do?"-_" $F$.," in Popuiar Educator.

THINKING AND LANGUAGE EXERCISE. ARRANGE a number of easy questions on slips of paper, one question on each slip, and for busy work allow your pupils to write the answers in full. Commend neatness, penmanship and style, and thus encourage pupils to do well. The following are suggestive merely:

1. What are hammers for?
2. Of what use are our thumbs?
3. What day of the week was day before yesterday?
4. Where does tea come from ?
5. Name five kinds of apples.
6. What relation is your mother's eister to you ?
7. What can a horse do that a dog cannot do ?
8. Why do we see the stars only at night?
9. Name five things made of iron.
10. How many shoes does it take to shoe an ox? -Michigan Moderator.

QUIET WAYS ARE BEST.
What's the use in worrying, Of hurrying
And scurrying,
Everybody flurrying
And breaking up their rest,
When everyone is teaching us,
Preaching and beseeching us
To settle down and end the fuss, For quiet ways are best.
That rain that trickles down in showers A blessing brings to thirsty flowers;
And gentle zephyrs gather up
Sweet fragrance from each brimming cup.
There's ruin in the tempest's path,
There's ruin in a voice of wrath,
And they alone are blest,
Who early learn to dominate
Themselves, their violence abate,
And prove by their serene estate
That quiet ways are best.
Nothing's gained by worrying By harrying
And scurrying.
With fretting and with flurrying
The temper's often lost ;
And in pursuit of some small prize
We rush ahead, and are not wise,
And find the unwonted exercise A fearful price has cost.
'Tis better far to join the throng That do their duty right along : Reluctant they to raise a fuss, Or make themselves ridiculous.
Calm and serene in heart and nerve,
Their strength is always in reserve, And nobly stands each test;
And every day and all about
By scenes within, and scenes without, We can discern, with ne'er a doubt, That quiet ways are best.
-Selected.
THE COMING GEOGRAPHY TEACHER.
Mr. Leete, a recent writer in Science, pertinently and sensibly says :-" Geography needs a fund of general information and special information as wide as a church door and as deep as a well. No teacher whose specialty is not geography ever acquires it, and we have almost none who are devoted to this one subject. The class-room system forbids.
"This upper stage of the work needs the mature strength of college graduates, and of college graduates devoted to geography. Of such there are almost none. In fact I know of a vigorous attempt recently made to find one, which ended in failure. Germany alone provides her schools with such men. There one must know the whole subject. As to teachers for the upper grade of geography, until our colleges take a higher stand in regard to requirements in the subject, and provide professors who can teach the subject so that their students will have a real, living interest in the matter when they leave college-until then we must wait, content with the few men who, of their own accord, work up the subject from a professional standpoin', and in their own circle of influence do really teach geography."-Southwestern Fournal of Education.

## Miscellaneous.

LONG LAKE!
Of mountain, lake, and river, clear From Chunkamunk to Punkapaug,
I've heard of names that seemed absurd; But never yet, upon my word,
One half so queer as this one here:
Chargoggagoggmanchangagoggagungamaug*
*The full name of a lake near Webster, Mass.; abbreviated on the maps to Chaubunagungamaug.-Wide Awake.

## JACK'S VISIT TO THE NATURAL HISTORY

 SOCIETY.ONE wet evening, however, Willie Ransom got Jack to go, just because there was nothing else to do. There was a short paper being read on "FishScales," and a number of them were mounted for microscopical examination, of course with a low power, say inch and half inch. Anything relating to fish or fishing was certain to gain Jack's attention, therefore a better subject could not have been selected to engage his notice. Besides, Jack had never yet even looked through a microscope! He felt a bit ashamed of this now; but there were a couple of microscopes present, and Jack determined to have a good look through them. The scales of different sorts of British fishes were on view. Of course, fish-scales are common enough; but who would think that each kind has its own pattern of scale, and that you could tell a species of fish by its scales?
The paper showed that the scales of fishes were composed of the same material, chitine, as the feathers of birds, or the hair and nails of animals -a kind of substance only found in the animal kingdom, and never in the vegetable; that these scales are developed in little pockets in the fish's skin, which you can plainly see for yourself when a herring is scaled. They are arranged all over the fish's body like the tiles covering a roof, partly overlapping each other, as is seen by one part of the scale being often different from the other.
Jack looked through the microscope and was delighted. He was always a reverent-minded boy, and the sight broke on his mind like a new revelation. How exquisitely chased and beautiful were the markings, lines, dots, and other peculiarities ! Then the scales which run along the middle line of the fish were shown him, and the ducts perforating them, out of which the mucus flows to anoint the fish's body, and thus reduce the friction of its rapid movement through the water. The lad was half bewildered at the possibility of the new knowledge. "Could anybody get to know about these things?" he asked Willie, who told him of course he could, if he would only take a little trouble.-From " Beginnings in Science at Mugby School," by Dr. J. E. Taylor, in the Popular Science Monthly for May.

## CATARRH, CATARRHAL DEAFNESS, HAY FEVER. <br> A NEW HOME TREATMENT.

SUFFERERS are not generally aware that these diseases are contagious, or that they are due to the presence of living parasites in the lining membrane of the nose and eustachian tubes. Microscopic research, however, has proved this to be a fact, and the result is that a simple remedy has been formulated whereby catarrh, catarrhal deafness and hay fever are permanently cured in from one to three simple applications made at home by the patient once in two weeks. N.B.-For catarrhal discharges peculiar to females (whites) this remedy is a specific. A pamphlet explaining this new treatment is sent on receipt of ten cents by A. H. Dixon \& Son, 303 West King St., Toronto, Canada. --Scientific American.

Sufferers from catarrhal troubles should carefully read the above.

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P.M., 2.00-4.30, English Grammar.
P. Saturday, 20th July.-A.M., 9.00-1r.30, Chemistry. P.M., 2.00-4.30, Botany.

Monday, 22nd July.-A.M., 9.00-11.30, Latin Authors, P.M., 2.00-4.30, Latin and Greek Grammar.
Tuesday, 23rd July.-A.M., ‘9.00-11.30, Latin ComFrenition. P.M., 2.00-3.30, French Authors; 3.35-5.35, rench Composition and Grammar.
Wednesday, 24th July.- A.M., 9.00-10.30, German authors; $10.35-12.35$, German Composition and Gram. mar. P.M., 2.00-4.30, Greek Authors.
Toronto, February, I889.
memorandum re first class examinations.
Candidates for Grade C will be examined at the following places: Guelph, Hamilton, Kingston, London, Ottawa, Toronto; or at such other place as may be desired by any Board of Trustees on notice to the Depart ment on or before the 25th day of May; it being understood that the Board is willing to bear the expense of conducting the examination.
Candidates for Grade A or B will be examined at the University of Toronto, commencing 3rd May.

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